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Japan's Industrial Policies

What are they, do they matter
and are they different
from those in the United States?

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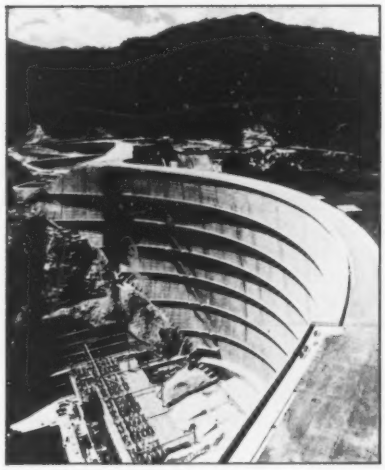
Executive Summary



Over the past year, industrial policy has become a key buzz-word in Washington. Some groups are calling for a more active government industrial policy in the United States while others are calling for protectionist barriers against foreign products allegedly benefitting from industrial policies abroad. In the midst of this discussion and debate, Japan is repeatedly identified as a prime example of a country with an active and effective (or unfair) industrial policy. In doing so, Americans have created a distorted and almost mythological Japan in which economic success is ascribed to an omnipotent government bureaucracy.

This study endeavors to strip away the mythology and look at the available data on industrial policy in Japan—in the context of other economic factors in Japan and also in comparison to the United States. It looks at industrial policy in a broad context, including macroeconomic and macrosocial policies with an impact on industry, as well as the microeconomic (so-called "targeted") activities of the government. Far too many of the American statements about Japan's industrial policies have been the result of "tunnel vision", looking exclusively at particular microeconomic government policies without any consideration of this broader context.

While the topic of the appropriate government role in the industrial development of the economy is certainly an important one that Americans ought to consider very carefully, this study concludes that Japan offers little that should be emulated or punished. The major conclusions are as follows:

1. The image of a very active government role in Japan comes from focusing on the 1950s and 1960s. The conditions giving rise to an active role at that time were very special and temporary, and as they came to an end the importance of government policy to industry waned. The policies followed and the tools available to bring compliance are far weaker today than in the past.

2. Japan's rapid growth in the postwar period is not proof of the effectiveness of industrial policy, because growth was the product of many economic and social factors, of which government policy was only one.

3. The most important government policies assisting industry were macroeconomic rather than microeconomic. The government supplied the necessary physical infrastructure, held down the size of government spending at a time of extraordinary private demand for investment funds, and pursued a program of low interest rates.

4. Of the microeconomic aids, protection from imports was the only policy that stands out. Acting as the United States did in the 19th century, Japan protected infant industries heavily until the 1960s. Since that time, however, the level of protection has fallen, and it is no longer a tool which can be used without incurring instant protest from abroad.

5. The government did follow a number of other microeconomic policies designed to assist industrial development, including provision of forecasts of future structure, financing for industry, some direct subsidies, support for research and development, relaxation of antitrust policy, favorable tax treatment for particular industries, and aid for export development. However, at the present time, the actual policies followed are not extensive.

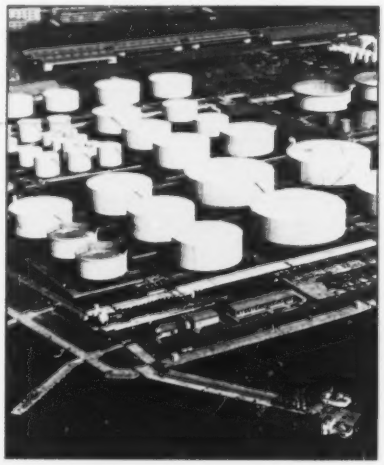
6. Looking at government financing, a central part of industrial policy, the data do not support the American belief that the Japanese government provides extensive financial assistance for new industries. The bulk of government loans go to agriculture, small business, transportation and utilities. The support for infrastructure—transportation and utilities—may have been important to the economy, but it represents a policy far different from what Americans assume about Japan.

7. For those few industries (such as computers or industrial robots) where the government clearly did use a variety of policies to encourage development, industry success was hardly due solely to government support. Nor have all industries that received government attention been highly successful (such as commercial aircraft).

8. When Japan is compared to the United States, the differences are not remarkable. The federal and state governments are actively involved in industrial policy in many of the same ways that the Japanese government has been. Government lending to the private sector, for example, is as extensive in the United States as in Japan, and support for research and development is far higher.

Although many studies of Japan's industrial policies have been produced recently, the facts are often exaggerated or distorted because of the aim to demonstrate the need for a more active industrial policy in the United States or to garner support for protectionism. The evidence implies that Americans should be rather skeptical of Japan as a role model and of charges that Japan is unfair. The popular view of Japan's industrial policy has made for exciting political rhetoric, but it does not square with the facts.

Introduction



Over the past year, industrial policy has become a focal point of interest in Washington. American companies faced with foreign competition have charged that industrial policies pursued in other countries give their competitors an unfair and artificial advantage in the international market. Another major part of that debate has been whether or not the United States government should pursue a more active industrial policy. As part of that debate, Japan's activities have received considerable publicity—both favorable and critical—as an example of a clearly defined and active industrial policy. Those who advocate a more active industrial policy in the United States use Japan as a role model. Those who argue that industrial policy causes trade distortions hold up Japan as an example of unfair competition and use that as an excuse for trade retaliation.

Industrial policy, and the U.S. government's approach to it at home and abroad, is a serious question that deserves the attention that it is now getting. Unfortunately, more confusion than light seems to have been generated about Japan in the process. This is not surprising since the question has more to do with the process of domestic American politics than with dispassionate study. But whether the goal be emulation or retaliation, it is important to understand clearly what constitutes industrial policy in Japan.

This study has three major purposes in furthering that understanding. First, it will consider the definition of industrial policy, a concept that has proven to be wonderfully vague and variable in its usage in Washington. Second, it will consider the full range of activities of the Japanese government in the postwar period that can be considered part of industrial policy. Third, it will place those policies in a comparative setting by looking at industrial policies in the United States.

A number of themes or conclusions emerged from the research for this study that will be emphasized repeatedly. Foremost of these is that much of the information, and indeed the initiative in raising the issue in the first place, comes from those who are seeking protection from Japanese competition. This quite naturally has led to exaggerated, misleading, and flatly incorrect interpretations of Japan. Some very good studies of Japan's industrial policy have also been produced, but much of the public relations initiative has generally rested with the protectionist group.

Another major theme is that the United States has industrial policies as well. To look at Japan in isolation, without making a comparison to the United States (or to other countries), leads to incorrect and sometimes silly conclusions. In some respects, what differentiates the two countries is that the Japanese clearly articulate what they mean by industrial policy and the United States does not. If one believes that actions speak louder than words and the focus is shifted from the articulation of policies to the actual execution or range of government activity, then the differences between Japan and the United States are not as wide as many would believe.

A third theme is that among the array of policies in Japan, attention has been focused insufficiently on macroeconomic and macrosocial policies because they are not a controversial form of government activity in either country. These policies have not been raised at the bilateral government discussions of Japan's industrial policy that took place in 1983, but they are clearly important to understanding Japan. The most important government policy elements in the success of some Japanese industries seem to stem from these macro policies, plus the heavy trade protectionism of the earlier postwar period, than from other forms of microeconomic aid directed to them. These differences in types of policy and their importance will be considered in detail later.

Not only has the emphasis been somewhat misplaced in terms of the relevant array of policies, but one must also be aware that Japan has undergone tremendous changes over the past 30 years. Both the types of policy tools available to the Japanese government and their effectiveness have diminished over time. Too many American writers base their assumptions on the fairly heavy policy role of the Ministry of International Trade and Industry (MITI) during the 1950s and early 1960s—an era now two decades in the past. When considering each policy tool, this study will carefully differentiate between what was done in the past and what occurs now. In general, the past two decades have brought both a significant reduction in the policy tools available to the government and a lessening of their importance or impact on industry.

After considering the above points—deliberate misinterpretation, comparison between the two countries, macroeconomic policy, and the tremendous changes over time—Japan and the United States still exhibit differences. Japan does follow some policies that the United States does not, although the similarities are more striking than the differences. There remains room for disagreement about the importance of Japanese government policies toward certain industries, even though the range of differences and possible disagreement is far smaller than many would lead us to believe. Therefore, discussion between the two countries over industrial policy is an appropriate outcome.

What is Industrial Policy?

Industrial policy, and the currently popular version of the term in Washington—targeting—has a wonderfully vague and imprecise usage in the United States. Everyone assumes that everyone else knows what is meant, so the definition is unnecessary. Yet, the explicit or implicit definitions vary. The term "targeting" implies a rather narrow definition—those policies aimed at a particular

industry or firm, singling it out for expansion relative to others. The Japanese, and the recent series of bilateral meetings on Japan's industrial policy, tend to stick to this sort of narrow definition. One hears in Japan, for example, that industrial policy equals the Ministry of International Trade and Industry's (MITI) policy toward the manufacturing industry.

However, a great many government policies affect industry and can therefore rightly be called industrial policy or policies. Even the line between what can and cannot be considered industrial policies is indistinct, since policies that may have strong social or other motivations can have an important industrial impact. This diversity of levels and types of policies implies that once the full range of government actions that affect an industry are identified, it may be difficult or impossible to measure their impact on the industry because of insufficient data to separate the different effects.

Recent American scholarly work tends to adopt a broad concept of industrial policy. For example, Adams and Bollino define industrial policy as any government policy that shifts production functions (i.e. alters the cost of production for an industry) or the composition of factor inputs to an industry. Thus, they include virtually everything that is not a demand policy.[1] Abernathy, Clark and Kantrow, approaching the question of how to make American companies more competitive, set up a list of key elements in manufacturing competitiveness that range from fiscal and monetary policy to corporate management and the work ethic. In their schema, any government policy affecting these elements would rightly be called an industrial policy.[2]

Statements coming out of the Democratic and Republican parties are also very broad in their definitions of industrial policy. The Democratic caucus of the House issued a major policy statement in 1982 that is now forming the basis for legislation aimed at revitalizing American industry through a more prominent government role. Their statement includes both policies that are targeted at particular manufacturing industries (their concept of revitalizing basic industries: targeting them to survive) and a wide range of other tools. These other items include repair and improvement of public infrastructure (highways and harbors), greater research and development support, macroeconomic policies to encourage investment, improvements in education, and creation of a new Economic Cooperation Council with business, labor and academic members to advise the government. As is readily evident from this list, the Caucus' concept of industrial policy runs the gamut from micro to macro.[3]

Until the summer of 1983 the Democrats were ahead of the Republicans in thinking about industrial policy, but that situation is now changing. The first major statement from the White House was made by Edwin Harper in the spring of 1983, and it adopted an equally wide view. While repudiating targeted assistance, or picking "winners and losers," as one would expect given the ideological stance of the Reagan administration, the statement went on to advocate continued anti-inflationary policies in order to create a favorable business climate, greater support for R&D, support for worker training programs, and pursuit of freer international trade. He sums up the government role as building a firm foundation and keeping "the rules of the game fair."[4] Mr. Harper has now become a member of the Reagan administration's commission on industrial competitiveness, and his earlier speech has continued to provide the basic guide to the Republican approach. Although it avoids targeted aid, it defines industrial policy even more broadly by including demand side policies by referring to the control of inflation as an important ingredient of building industrial competitiveness.

The Organization for Economic Cooperation and Development (OECD) has joined in the broad definition approach. In a publication addressing particular aspects of industrial policy in its member countries, the OECD states that "industrial policy instruments are the means used by public authorities to influence either the profitability prospects of investment or operating conditions in enterprises by transferring financial costs or resources."[5] This OECD statement is basically the same as that of Adams and Bollino, although this particular report then investigates fairly narrowly focused manpower policies.

This short review of other studies demonstrates that there is ample support for adopting a broad definition and avoiding an exclusive focus on the microeconomic aids that are called targeting. This study, too, takes a broad view, and the the exposition in the following sections will divide policy into three categories:

Macroeconomic and macrosocial policy. This category includes those policies which affect industry without any specifically intended targeted effect.

Import Policy. Policies on import barriers are considered separately in this report, mainly for heuristic reasons.

Positive Microeconomic Policy. Out of lack of a more appropriate term, this is meant to include all other forms of microeconomic aid aimed directly at domestic industry. The term positive is used here to mean that, in general, these policies necessitate a positive commitment of government funds; it is not intended in any sense to imply that this form of policy is better than others. It is also aimed directly or positively at domestic firms, rather than indirectly or negatively at the foreign competitors of those firms (as is import policy).

Definitional Problems and Considerations

This division into three parts is admittedly somewhat artificial, beginning with the fact that macro policies may have a rather differential effect on industry. This point is emphasized by Adams and Klein: "Policies to improve the operation of the market—investments in infrastructure, contributions toward research-and-development spending, tax incentives, across-the-board tariff measures, for example—can be quite general. But these measures are likely to have industry-specific (and often region-specific) impact even when they are framed in nonspecific terms."[6] Examples of this situation include tax benefits for research, which aid firms that are research intensive, or investment tax credits which aid capital-intensive industries like steel. All forms of tax policy to encourage industrial development, in fact, aid only firms making a profit. While this differential impact of macroeconomic policies must be acknowledged, it is still useful to draw a distinction for the purposes of the exposition in this study.

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[1] Gerard F. Adams and Lawrence R. Klein, eds., *Industrial Policies for Growth and Competitiveness* (Lexington, MA: D.C. Heath and Company, 1983), p. 13.

[2] William J. Abernathy, Kim B. Clark and Alan M. Kantrow, *Industrial Renaissance: Producing a Competitive Future for America* (New York: Basic Books, 1983), p. 4.

[3] Democratic Caucus, U.S. House of Representatives, Caucus Committee on Party Effectiveness, *Rebuilding the Road to Opportunity: A Democratic Direction for the 1980s* (September 1982).

[4] Edwin L. Harper, "Address to U.S. Chamber International Forum," June 15, 1983.

[5] Organization for Economic Cooperation and Development, *Selected Industrial Policy Instruments: Objectives and Scope* (Paris: OECD, 1978), p. 9.

[6] Adams and Klein, p. 14.

A second problem, alluded to earlier, is that among macro policies, it is difficult to draw a clear line between policies that are clearly devised for the purpose of having an effect on industry or the economy and those that are not so devised but still have economic ramifications. A prime example of this problem is education policy, which is increasingly considered in the United States in terms of its contribution (or lack thereof) to industrial competitiveness. In line with the broad approach to defining industrial policy, this study will include education policy on the grounds that it does have some industrial relevance despite the many other social goals involved.

American interest in Japanese government policy measures began with an almost exclusive focus on the micro side. But if macro policies are an important component of industrial policy, then they should be included in the discussion. Not only are they included in this study, but they are among the most important policy elements identified, a significant point because no one now questions the right of nations to follow most kinds of macroeconomic policies to meet full employment and development goals. As will be shown later, both Japan and the United States have pursued macro policies with an eye to promoting economic growth and development, especially through the tax system (using tax credits, capital gains taxes, and depreciation measures).

A number of macro policy areas are considered in the following sections on Japan and the United States including:

1. Decisions on the size of the government sector in the economy.

2. Tax policy (excluding tax measures that are tailored to specific industries).

3. The institutional framework for finance, and within that framework policy on interest rates.

4. Education policy.

5. Provision of physical infrastructure.

6. Macroeconomic forecasting and planning.

Moving on from the macroeconomic and macrosocial policies, one confronts the crux of the current complaints leveled against Japan—microeconomic policy measures. Even here the definition varies, but for the purposes of this study it is considered to mean packages of policy measures put together to promote the growth of particular industries. However, there is a tendency in the United States to twist the meaning to imply that what is being targeted is foreign markets for particular goods. Consider, for example, the following statement by the Democratic Caucus of the House:

> These competitive challenges (from foreign companies such as those in Japan and France) are not haphazard occurrences. They are calculated, planned national efforts by our competitors to identify and capture specific markets from American industries. In virtually every case, our competitors have undertaken a national effort to formulate an economic strategy and marshal public and private resources to carry out its goals.[1]

In the case of Japan, the primary government policy has most definitely not been to capture specific American markets. This does not mean that promotion of exports was not a part of the policy measures or that companies do not move aggressively into specific product markets in the United States. But the goals of policy have been to build economic well-being at home. At the government level there has not been a deliberate desire to capture American markets—if anything, the government seems to wish that Japanese companies would be less aggressive or less successful in penetrating American markets because that only leads to more trade problems.

Another distinction that should be clarified is the separation of import policy and positive microeconomic measures. Both, after all, are microeconomic policies since import barriers are mostly set at an industry or product level. However, this is a useful distinction. The establishment of import barriers to protect the development of infant domestic industries is a form of commercial policy that has been used for centuries. As an industrial development tool, the concept is to provide protection until such time as the domestic industry can compete on even terms with foreign companies. However, there are well-known problems with this form of policy: the domestic industry may fail to become competitive because it knows that the foreign pressure has been removed, and the government may find the removal of protection to be a politically difficult transition to make even though the industry has become competitive. Many countries have used import barriers to foster domestic industries—including the United States, which deliberately used them for these reasons in the 19th century.

In this study, import policy is considered separately from other microeconomic aids because of this historical and widespread usage and because it has been the traditional area of international economic diplomacy. Among microeconomic policy tools in Japan, import policy was one of the most heavily used in the early postwar period, and this study concludes that in most cases, it was the most important or successful element of policy.

The following sections on Japan and the United States consider several types of import policy:

1. Tariffs.

2. Quotas.

3. Standards, regulations, and inspection procedures. Standards and regulations may be set for reasons totally divorced from import protection, but they can also deliberately or inadvertently block imports.

4. Buy-domestic pressures, including both government procurement policies and government encouragement of domestic purchases by industry.

These are followed by consideration of seven kinds of other positive microeconomic policy measures:

1. Government forecasting and planning (as a form of risk reduction for private industry and as a forum for coordinating policy packages for particular industries).

2. Establishment of special government lending institutions and the provision of capital from them to selected industries at concessional interest rates. Two other forms of financial support by government financial institutions—provision of equity capital and loan guarantees—are also included here.

3. Direct subsidies from the government (other than R&D support, which is considered next).

4. Government support for research and development, including grants, loans, and policy on joint R&D work by industry.

5. Government endorsement of coordinated or collusive action by industry (such as coordinated investment, production controls, or merger activity) through relaxation of antitrust laws, creation of special laws for industries or more informal government directives (i.e. administrative guidance).

6. Favorable tax treatment that is tied to specific industries (as opposed to macroeconomic tax policies that are equally available to all industries).

7. Aid for export development. This could be considered a part of commercial policy, but it is a positive aid in the sense that it is aimed directly at domestic firms and involves a positive financial commitment by the government, which

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[1] Democratic Caucus, p. 15.

distinguishes it from the import barriers that make up commercial policy.

In looking at each of the macro and micro policy measures and how they are used in Japan and the United States, it is important to distinguish between the intent, or the verbal and written articulation of industrial policy as a concept, and the sum total of the actual policies put into use and their impact on the economy. This history of philosophy is replete with considerations of this distinction between objects themselves and the perception of those objects. The distinction becomes critically important for industrial policy because what governments think they should do, and the rhetoric in which they describe their actions, can be far different from the actual operation of their policies. This was a point made a number of times by people interviewed for this project in Japan, including Mr. Isamu Yamashita, chairman of the board of Mitsui Engineering and Shipbuilding Co., who saw a large difference between the ideals and pronouncements about industrial policy and the actual action. One must consider the outcome and not the intentions when making an international comparison between Japan and the United States, and those outcomes appear to be less different on a bilateral basis than the official statements.

A final consideration in evaluating the importance or effect of the welter of different policy measures is to decide what is to be measured. Are we concerned with explaining how industrial policies led to the overall success of Japan in terms of faster real GNP growth, a faster rise in per capita income, or some similar overall measure? Or are we interested in explaining how policies led to greater growth and international success of a particular industry, with possible implications for trade distortion? These two questions are not necessarily the same; it is entirely possible to pursue government policies that promote the success of certain industries without necessarily making the economy grow faster. In fact, creating a skewed industrial structure could hurt the economy by leaving it vulnerable to future changes (such as countries that rely too heavily on the development of a single raw material export). The following sections on Japan and the United States consider these different levels of impact or influence of policy.

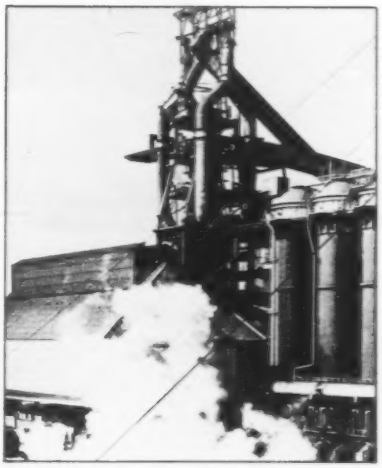
Industrial Policy in Japan

This section considers postwar Japanese industrial policies following the general outline presented above—including both the current status of those policies and their evolution over time. There are two ways in which to consider industrial policy in Japan. One is to focus on particular industries and examine the array of policy measures that affect them; the second is to look at the array of policy measures, with their use toward particular industries included as examples. The main emphasis here is on the second approach, as the first invariably misses some important policy tools or gives an inaccurate picture of their importance because of the very wide variance across industries in the usage and importance of policy measures. The case-study approach has also been rather well covered in other studies of Japan's policies.[8] However, because the deliberate packaging of measures for particular industries is a distinctive feature of Japanese industrial policy, the experience of several industries is considered as well.

Throughout this section, the changes over time are considered repeatedly. What the Japanese government does today under the name of industrial policy is far different from what it did 30 years ago. To emphasize those changes, the special circumstances of the 1950s and the changes in those circumstances, plus the resulting decline in government policy tools is discussed later in the section. In many ways, the 1950s and 1960s were a unique period, and the policies used have little applicability either to Japan today or to the United States.

Philosophy

Japan has a clearly articulated philosophical or ideological support for its



industrial policy. Putting it into a broad context, MITI minister Sadanori Yamanaka answered foreign criticism in the spring of 1983 by stating that "one of the most important functions of the state is to facilitate economic development and to enhance the popular welfare."[9]

Going back to the 1950s, that philosophy takes on the tones of American national security arguments—the survival of the nation depended upon its ability to develop exports to cope with the lack of raw materials and the chronic balance of payments deficits. To achieve those ends an active government policy role was considered necessary. Attitudes now no longer favor as heavy a government role as in the early postwar days, but strong support remains within the concerned government ministries for at least some government policy role. The idea of economic strength as a type of national security policy is considered in greater detail later in this study.

In the early postwar years, the feeling that Japan was unique or different from the West provided a strong motivation for industrial policy. In an interview for this study, Mr. Yoshihiko Morozumi, a former vice minister of MITI who played a major role in shaping the policies of the 1950s and 1960s, commented that Japan needed an industrial policy because of its position as a late developer, while the West needed no industrial policy because it led the development process. Mr. Yoshihisa Ojimi, MITI vice minister from 1969 to 1971, seconded this view, adding that any nation in such a position as Japan's must have a vision of the future of its industrial structure in order to succeed.

The current philosophy is succinctly presented in the MITI visions, and runs along the following lines. The market mechanism is the best that civilization has produced for the allocation of resources in the economy in general. But, the market mechanism has problems: "It is widely recognized as having inadequacies, especially for coping with long-term, structural problems."[10] Therefore, the market alone is perceived to be unable to efficiently deal with some of the basic problems of Japan, including the lack of natural resources (and especially energy supply), limitations on land, and others. This leads the Ministry of International Trade and Industry to state that "in order to realize an industrial structure capable of satisfying the diverse needs of the people under such severe conditions, it will be necessary to complement the market mechanism by introducing 'soft planning,' establishing guidelines, elements and relevant measures."[11]

This justification for industrial policy is consistent with the language adopted by the Organization for Economic Co-operation and Development (OECD) in 1978 called positive adjustment policies (PAP). The OECD concept sees justification for a government role in bringing about structural change in an economy, so long as competition (the main market signal for structural change) is not hindered.[12] The PAP statements are couched in very general terms, but at this general level Japanese government officials see justification and legitimacy for their own domestic policies toward industry.

Thus, government officials in Japan see their role in industrial policy as nec-

[8] For example, United States International Trade Commission, *Foreign Industrial Targeting and Its Effects on U.S. Industries, Phase I: Japan* (USITC Publication 1437, October 1983); U.S. General Accounting Office, *Industrial Policy: Case Studies In the Japanese Experience* (GAO/ID-83-11, October 20, 1982; or Ira Magaziner and Thomas Hout, *Japanese Industrial Policy* (Berkeley, CA: Institute of International Studies, 1980).

[9] Press release of remarks made by Mr. Sadanori Yamanaka on April 18, 1983.

[10] Ministry of International Trade and Industry, *Japan's Industrial Structure—A Long Range Vision*, 1975 Edition, p. 11.

[11] Ibid.

[12] Organization for Economic Cooperation and Development, *Positive Adjustment Policies: Managing Structural Change* (Paris: OECD, 1982).

essary and legitimate. Support for this role comes from the private sector as well: the MITI "visions" that present the ministry's ideas on the desired future structure of the manufacturing industry are the product of the Industrial Structure Council, an advisory group (with numerous subdivisions) attached to the ministry that includes academics, businessmen, labor representatives and journalists. Thus, even though the ministry's input is heavy, the reports do reflect acceptance by others. Perhaps an equally telling fact is that with the government espousing this kind of philosophy, it attracts the best university graduates each year; certain branches of the government (especially MITI and the Ministry of Finance) are perceived as prestigious, important, useful and meaningful places to work despite modest salaries.

An important feature of this philosophy of "soft planning" is a recognition of the dynamic nature of the economy and of the policy measures that are appropriate. The Japanese often criticize the United States for not thinking about the dynamic aspects of policy and the economy, but it is easy to carry this distinction too far. U.S. antitrust policy has been criticized at home as well for being too heavily rooted in static efficiency concepts, but otherwise American thinking and government policy seems to be as dynamic as in Japan. On the Japanese side, one can easily point out that the trade and capital liberalization of the 1960s did not come as the result of farsighted decisions in the 1950s, but as the result of immediate pressure from abroad. The Ministry of International Trade and Industry has also been slow to recognize and adjust to the relative shift in industrial structure away from manufacturing toward services, a point that will be considered in more detail later. Nevertheless, it remains true that documents such as the MITI "visions" do contain a repeated emphasis on change (leaving aside for the moment the question of the extent to which the visions are a factor in the development of subsequent policy measures).

Aside from the catch-up justification and the OECD's PAP justification, there is another line of support for a government role expressed in Japan: that it is necessary because of unique or special features of Japanese society. As put most often, concepts of group loyalty in Japan result in excessive, unbridled and destructive competition between corporations. This situation requires the government to play a role as an arbitrator or umpire to prevent competition from becoming destructive.[13] It is not the purpose of this study to enter the quagmire of deciding whether Japanese society is unique, but it is important to recognize that at least some government officials in Japan see this argument as their justification for an active government role.

Stating that industrial policy is a widely accepted concept in Japan is not meant to imply it has had no critics. During the late 1960s and early 1970s there was extremely heavy criticism leveled at MITI related to the swift emergence of intense pollution problems as a result of the single-minded pursuit of high economic growth.[14] The Japan Fair Trade Commission, the antitrust enforcement agency in Japan, has also often tangled with MITI, opposing specific policies on the grounds that MITI underestimates the ability of the market to work efficiently. An example of this, the renewal of the structurally depressed industries law, is considered later.

From the academic side, there is also some criticism of the government role in the economy. Many economists in Japan have been very skeptical of the justifications put forth by MITI for its activities, a view typified by Professor Keimei Kaizuka of Tokyo University. He accepts some of the industrial policy measures or policies as successful, but sees many of them as only causing inefficiency. In the 1960s he wrote that there was little need for industrial policy, and that what was called industrial policy in Japan amounted to nothing more than whatever MITI was doing.[15]

Kozo Yamamura of the University of Washington is also critical, but not to the extent of Kaizuka. He sees the sacrifice of what he calls economic democracy for the sake of promoting industrial investment and higher GNP growth as well conceived in the 1950s, but carried too far and losing its rationale by the 1960s.[16]

Despite the criticisms from some quarters, it remains fair to say that industrial policy as a general philosophical concept has far more support in Japan, stemming from Japan's special position as a late developer, than is the case in the United States. In addition, Japan clearly provides coherent expression to that general philosophy in its actual industrial policy. This is a major difference from the United States, where there is little or no unified philosophy in the government about industrial policy. Americans make a mistake, though, by confusing this coherent philosophy with coherent policy; not all observers of Japan believe that overall industrial policy implementation is as coherent or economically rational as portrayed in these philosophical statements.

Macroeconomic and Macrosocial Policy

Macro policies are an important part of industrial policy in Japan even though they have not been raised to any great extent by Americans critical of Japanese policies. But in looking at macro policies, one should recognize that as in other countries, Japan has multiple policy goals, not all of which are purely economic or growth oriented. The policies considered here to be relevant to industrial purposes are the small government sector, tax policy, financial sector policy, interest rates, education, public works and macroeconomic plans.

Small Government Sector

Japan and the United States share a philosophy that government should not dominate as a share of the economy. During the high growth era of the 1950s and 1960s, Japan maintained a government sector that has absorbed a significantly smaller share of GNP than was the case in the United States or the major European countries. Data comparing Japan to the United States is shown in Table 1. Going back to 1960, gross government expenditures in Japan were only 21 percent of GNP, compared to 30 percent in the United States. However, this small government sector applied only to the high growth era. In the 1970s, the government share grew rapidly, so that by 1981 it had reached 34 percent, not far below the level of 36 percent in the United States in 1980. Just as some officials and critics in Japan had wanted a stronger government role back in the high growth era, now there is considerable ferment for a return to a smaller government presence in the economy, exemplified by the current movement for administrative reform. The prospects for any major

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[13] Naohiro Amaya, "Wa no Rinri to Dokkin Ho no Ronri," *Bungei Shunju*, December 1980, available in English as "Harmony and the Antimonopoly Law", *Japan Echo*, 1981.

[14] This era of criticism is well covered in Jimmy Wheeler, Merit E. Janow, and Thomas Pepper, *Japanese Industrial Development Policies in the 1980's: Implications for U.S. Trade and Investment* (Croton-on-Hudson, NY: The Hudson Institute, October 1982), pp. 72-72.

[15] Keimei Kaizuka, "Shinkoten Sogo no Tachiba kara Mita Seisaku Taikei" (The Policy System from the Viewpoint of the Neoclassical Synthesis), *Toyo Keizai Rinji Zokan Go* (Toyo Keizai Special Edition), December 1968.

[16] Kozo Yamamura, *Economic Policy in Postwar Japan: Growth Versus Economic Democracy* (Berkeley, CA: University of California Press, 1967).

Table 1: The Ratio of Government Expenditures to GNP

Year	Japan	United States
1960	20.7%	29.8%
1970	22.3	33.5
1975	26.9	36.2
1980	32.9	36.4
1981	34.1	n.a.

Source: Calculated from data in Prime Minister's Office, *Japan Statistical Yearbook* and Department of Commerce, *Statistical Abstract of the United States*.

Note: The government figures used in this table are gross expenditures by central and local governments (adjusted for duplication), while GNP is a net or value-added measure. Using the government expenditure figures in the national income accounts yields only a 19.6 percent share for government in Japan in 1981.

reduction in the ratio of governmental expenditures to GNP, however, is highly unlikely given the rise in transfer payments as the population continues to age.

The importance of the small government sector in the high growth period was that it freed resources for the private sector. Japan at that time was operating in the context of a capital shortage: at existing interest rates, business was willing to invest more than the economy was saving. This was intensified by the existence of heavy controls on international capital flows, constraining Japanese companies from meeting their capital needs from abroad. In this context of rather severe capital scarcity, the government avoided "crowding out" private investment.

Lower economic growth in the 1970s lessened private investment (as a share of GNP) while the supply of savings fell much less rapidly, bringing to an end the capital shortages of the earlier years. In addition, many of the earlier international capital controls were discontinued. These changes opened the way for government to meet rising demands for greater social benefits, causing the rapid rise of the government share in GNP and bringing it close to U.S. levels.

Tax Policy

Related to the fact that Japan had a smaller government sector in the 1950s and 1960s, taxes were lower in general. Americans tend to think of crowding out in terms of government borrowing in bond markets, but in Japan the government did not operate at a deficit until after 1965. Therefore, it was mainly through lower taxes that the government translated its smaller size into less competition for national economic resources.

Lower taxes as part of the small government syndrome may have been an important part of encouraging rapid growth in the earlier postwar period, but the general level of taxes as a benefit to the corporate sector no longer holds true. A recent study by the Congressional Research Service states "corporate tax burdens are considerably higher in Japan than in the United States, and indeed were higher even before the most recent round of tax changes if both national and subnational taxes are included."[17]

In addition to the issue of the overall level of taxes, the Japanese tax system in the postwar period has provided breaks for certain kinds of business activities on a non-targeted basis. These are considered in greater detail later as a form of microeconomic policy since many of these are aimed at particular forms of equipment or particular industries. However, the conclusion is that these special breaks no longer serve to aggressively promote industrial growth. In his testimony to the International Trade Commission, Gary Saxonhouse concurred with this conclusion: "Tax credits and special depreciation allowances designed to stimulate these activities are less generous than in other major market-oriented industrialized countries, particularly the United States."[18]

The issue of tax policy has also been covered in great detail in both the Brookings Institution study of Japanese economy[19] and the more recent Hudson Institute study of Japanese industrial policy.[20] Both of these studies reach the same basic conclusions that are being put forward here, that tax policies have relatively little impact on Japanese industrial success.

A number of observers have noted that the general benefits provided under the Japanese tax system are by no means coherently aimed at economic growth or the promotion of structural shifts toward higher value-added industries. The Hudson Institute study sums up this point nicely: "In 1981 the single most important subsidies provided to enterprises through the tax system were directed toward small businesses and agriculture, promotion of science and technology, protection of the environment, and natural resources and energy development."[21] If one did not know that they were referring to Japan, this description could just as easily be taken to describe the United States.

The other side of tax policy is the promotion of savings. Given the reluctance of the Japanese government to allow borrowing from abroad (considered below), domestic savings had to be encouraged to supply the necessary funds to meet domestic investment demand. The tax system was explicitly used to promote savings. Two of the most important measures were the tax exemption on interest earned on savings accounts (up to a maximum size of deposit) and the lack of a tax break for personal sector interest payments on debt. The tax exemption on savings accounts is even more extensive than it appears at first glance, given the convincing documentation in Japan that cheating abounds, so that people avoid paying taxes on interest income from deposits far in excess of the legal limits.

Regardless of the attractiveness of explaining high Japanese personal savings rates as a result of these tax policies, Pechman and Kaizuka concluded in their study for *Asia's New Giant* that tax incentives had little impact on savings.[22] Personal savings are the result of many complex factors, and in Japan in the 1960s this included low social security payments, high down payments on housing, little assistance for tuition costs, and lack of consumer credit in general (limited credit card use or consumer loans by banks. Many of these factors have now changed while the ratio of savings to personal disposable income has remained high, but even now a plethora of reasons for savings in addition to the tax advantage abound.

As with corporate tax breaks, the desire of the Ministry of Finance has been to reduce the revenue loss from the exemption of some interest income. Its main effort has been to crack down on tax evasion on savings accounts in excess of the legal tax-free limit by the introduction of a special identity card for all savers. This effort was stopped prior to its actual implementation because of intense political pressure, which only confirms the extent to which peo-

[17] Jane Gravelle, *Comparative Corporate Tax Burdens in the United States and Japan and Implications for Relative Economic Growth* (Congressional Research Service, Report No. 83-177 E-), p. 1.

[18] Gary Saxonhouse, "Tampering with Comparative Advantage in Japan?," Statement to the United States International Trade Commission, June 15, 1983, pp. 9-10.

[19] Joseph Pechman and Keimei Kaizuka, "Taxation," in Hugh Patrick and Henry Rosovsky, eds., *Asia's New Giant* (Washington: The Brookings Institution, 1976), pp. 317-382.

[20] Wheeler, Janow, and Pepper, pp. 83-105.

[21] Ibid., p. 97.

[22] Pechman and Kaizuka, pp. 367-369.

ple are avoiding taxes. Thus, the tax incentive for savings remains, despite the government's desire to reduce its use.

In conclusion, it is clear that during the 1950s and 1960s the tax system was explicitly used to support industrial policy goals—both through the promotion of savings and the provision of tax breaks to industry. Even in that era, though, economists are not convinced that the tax system made more than a very modest contribution to stimulating savings and investment in general or investments in particular industries. That contribution is even more modest now. To the extent that the tax system may have made a difference, the Hudson Institute concludes that the most important measures have been non-targeted. That is, the general features of the tax system—the preference for savings, low overall rates of taxation, the favoring of capital gains—are more important than the special tax measures aimed at particular industries.[23] Those targeted measures will be considered again under microeconomic measures.

General Financial Structure and Policy

One of the important functions of government is to provide an institutional framework for the financial system of the economy. This was an important and necessary adjunct of the economic development process in Europe and the United States, as it was in Japan. During the postwar period, the demands upon the financial system were quite different in Japan than in the United States, and policy was geared towards accommodating those differences. Given the rapid economic growth of the 1950s and 1960s, Japanese firms were in need of large infusions of outside capital. However, with the relative underdevelopment of the bond and equity markets, they needed to look to the banks for this capital. Having hindered the bond market, the government aided this alternative structure by fostering the flow of savings from individuals to the corporate sector through banks. One way of doing this is to direct the flow of private savings into bank accounts. Saxonhouse mentions that "for much of the period since 1945, the Japanese financial systems provided few inflation hedges and effectively limited Japanese household financial assets and liabilities to fixed rate savings accounts and closely related instruments. . ."[24] Table 2 shows that the composition of personal sector financial assets in Japan remained considerably different from that of the United States even in the late 1970s. Whereas cash, demand deposits and time deposits accounted for only 39.2 percent of personal assets in the United States at the end of 1978, they accounted for 68.7 percent in Japan.

Table 2: Composition of Personal Assets

	United States	Japan
Cash and Demand Deposits	6.5%	13.6%
Time and Savings Accounts	32.7	55.1
Bonds	9.6	8.1
Central government	(4.1)	(2.3)
Government corporations	(1.0)	(1.0)
Local government	(2.6)	(0.2)
Corporate and foreign	(1.9)	(4.6)
Corporate Equity	23.5	10.0
Life Insurance	15.7	12.6
Other	8.1	0.6
Total	100.0	100.0

Sources: Bank of Japan, *Economic Statistics Annual*, and Department of Commerce, *Statistical Abstract of the United States*.

Notes: 1. U.S. data are for December 31, 1978, Japanese data for March 31, 1979.
2. The category "other" includes for the United States pension fund reserves, security credit, mortgages, corporate paper, money market funds, and miscellaneous. For Japan it consists mainly of company savings plans.

The other way in which bank financing of industry may have been encouraged was through interest rate policy. At this point the focus is not the targeting of investment funds to any particular industry, but in the general bias away from the personal sector toward business. As will be discussed at the end of the section on Japan, this bias may have been important given the peculiar conditions facing the economy in the early postwar period.

However, as with most elements of government policy considered in this study, it would be a mistake to assume that the structure of Japanese finance is due entirely to policy measures. In addition to the underdeveloped state of savings instruments other than bank accounts, the Japanese public seems to be rather risk adverse. The share of total outstanding corporate stock held by individuals, for example, has steadily declined over time as people have moved their investments to other, less risky assets. Also, the Japanese public has had a very strong bias away from borrowing—thriftiness and avoidance of debt have been considered virtues, and this attitude is only now changing to any significant degree. The government may not have encouraged lending to the personal sector, but the demand from the public for policies to facilitate lending (such as better credit information) was not very strong.

By encouraging both savings in banks and the flow of bank funds to corporations, though, the Japanese government at least tried to help facilitate the important and necessary financial underpinnings for economic growth. This is the point made in a recent study for Congress by Harada, Sakakibara and Feldman.[25] The Japanese financial system may look somewhat peculiar from an American standpoint, but it was a rational and efficient response to the particular needs of the Japanese economy.

Interest Rate Policy

A special feature of the financial system deserving separate mention is the policy in the 1950s and 1960s of controlling interest rates at levels below market-clearing rates. This does not necessarily mean that interest rates were far below the levels of other countries during this period, just that, given the supply of savings and demand for investment funds, rates were held below levels that would have matched demand to supply. Recent research by Japanese scholars has pointed out that interest rates in Japan during that period were not low by international standards, but given the restrictions on international capital flows at that time, there is no reason to suppose that Japan's rates should have moved to international levels.

During the 1960s and 1970s, Japan underwent a considerable shift away from strict controls over interest rates

[23] Wheeler, Janow, and Pepper, p. 104.

[24] Saxonhouse, "Tampering," p. 34.

[25] Sakakibara, Feldman and Harada, *The Japanese Financial System in Comparative Perspective. A Study Prepared for the Use of the Joint Economic Committee, Congress of the United States* (Washington: March 12, 1983).

and toward far greater freedom of international capital movement. At the same time, Japan experienced a fundamental change in the balance of domestic savings and investment. Whereas the earlier postwar period was one of chronic excess demand for investment at existing interest rates, the 1970s brought a chronic oversupply of savings that pushed Japanese interest rates down, a market development unrelated to any desire to hold interest rates low for purposes of promoting investment.

The events of the past two years illustrate this shift very clearly. The dilemma has been that higher interest rates abroad have attracted Japanese capital out of the country, pushing down the value of the yen—a development that the Japanese government viewed with alarm as it was likely to feed into its international trade disputes. Between December 1981 and November 1983, the Bank of Japan (BOJ) resisted domestic pressures to reduce interest rates in order to prevent any worsening of the downward pressure on the yen. When the BOJ discount rate was finally cut in November 1983 (from 5.5 percent to 5.0 percent), the decision was based on the fact that the yen had strengthened somewhat and showed few signs of depreciating again.

Back in the earlier postwar years, though, not only did the government use its powers to hold interest rates down in general, it also followed policies that may have had the effect of skewing commercial banks' loan portfolios away from the personal sector. One policy that may have had this effect was the Bank of Japan's discount policy. Because the commercial banks were faced with a chronic demand for loans in excess of their available funds, they borrowed from the Bank of Japan to a much greater extent than is the case in the United States. Since the government was not issuing debt which the Bank of Japan could monetize, this route of lending to the commercial banks was the means of providing the necessary increases in money supply to support economic growth. These loans from the BOJ to the commercial banks were secured by commercial bills, and rather than having one discount rate, the BOJ in the 1960s set several rates depending on the type of bill submitted. Commercial bills and international trade bills were granted lower discount rates than others. From 1960 to 1969 there were actually eight different discount rates, with the lowest applied to export bills (5.11 percent in 1960) and the highest to overdrafts (8.03 percent in 1960). This structure gave the banks an incentive to have commercial and trade bills usable for borrowing from the BOJ, and a disincentive to hold consumer loans.

As with overall control of interest rates, this multi-tiered structure of discount rates came to an end in the 1970s. There is now only a single discount rate. When demand for investment funds from the corporate sector diminished in the mid 1970s because of slower economic growth, banks even turned a more interested eye toward the consumer market, yielding an increase in personal loans and credit card use. The loan portfolio of Japanese banks is still skewed away from consumers when compared to the United States, but the differences are less outstanding than they were in the past and more clearly reflect the social differences mentioned above than any deliberate government policy.

Education Policy

Americans view the Japanese educational system as being highly supportive of industrial development because of an emphasis on math and applied science. Interestingly enough, many Japanese do not see their educational system as math- and science-oriented because the guiding principle in public education is to provide "general" education. Some even comment that the system is less math- and science-oriented than before the war, because of the Occupation-imposed education reforms. Nevertheless, international tests of math and science ability generally show Japanese children (along with Israeli children) at the top.[26] Americans are now in an uproar (considered in the section on the United States) over the decline in educational standards, and in particular in math and science, precisely because they see this as contributing to American industrial problems.

While there are some differences between the two countries, we should be cautious about labeling the Japanese system a success and the U.S. system a failure. One of the major differences is simply that Japanese children attend school for longer hours and for more days per year than is the case in the United States, and the political support for such lengthening in the United States is probably rather weak.

In addition to the strong grounding in math and science at the elementary and secondary level, there is also a bias toward applied science at the university level. A recent article by a noted Japanese scientist points out that "the expansion of engineering education was accelerated in the 1960s in accordance with the government's policy of promoting the transformation of Japan's industrial structure to one more oriented toward high technology."[27] The relative lack of resources devoted to basic science can also be seen in the small number of Nobel prizes won by Japanese scientists. The reasons for the relatively weak showing in basic science are legion, but a major one in the earlier postwar period was that basic science simply did not fit into the economic needs of the country. Now that the Japanese economy is close to or at the technological frontier in a number of industries, the emphasis is beginning to change.[28]

Another way in which the school system was geared to meet the needs of the economy is in the general lack of graduate-level education. Not only does the system provide little graduate education, but undergraduate education is not very rigorous. This reflects the strong corporate role in training beyond the university level. This strong role involves a chicken and egg problem: do companies provide training because the school system has failed to meet their needs, or do universities fail to provide strong academic programs because they know that companies will provide their own training? One can only comment that, given the low turnover rates that prevail, Japanese companies can afford to make the investment in training, and in the process mold employees more easily to their corporate image and goals than if they had a strong general, non-corporate background. However, this does not prevent the corporate sector from periodically complaining about the quality of education in Japan.

None of the above comments should be taken to mean that Japan has a perfect educational system, a point considered again under the section on the United States. Children undergo brutal pressure to study and learn at an age when they need more social development: the emphasis on rote learning implies that true understanding may be lacking; and emphasis on entrance exams can shut career doors for otherwise qualified people. The point here is only that certain elements of the educa-

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[26] For more information on the Japanese educational system, see Ezra Vogel, *Japan as Number 1: Lessons for America* (Cambridge: Harvard University Press, 1979), especially p. 159.

[27] Keiichi Oshima, "Science and Technology Education in Japan—Prospects and Future Tasks," *Journal of Japanese Trade and Industry*, September/October 1983, p. 21.

[28] These issues and problems for Japan are discussed in "Japan Calls for Creative Thinkers," *The Economist*, August 6, 1983, pp. 65-68.

tional system clearly supported and were consistent with the economic needs of the country during the high growth period and still provide a strong basis for industrial development.

Public Works Policy

During the early postwar period, the government biased its public works program toward industrially useful infrastructure and away from public amenities. That is, it placed its emphasis on roads, railroads and harbors, and not on sidewalks, sewers or telephones. As an example, consider the percentage of Japanese dwellings with flush toilets shown in Table 3. Prior to 1963, the number was so minor that the government did not even bother to collect the data. From 9.2 percent in 1963, it rises very quickly, reaching 45.9 percent by 1978. Flush toilets are not perfectly correlated with the provision of sewage disposal services by the government, since Japanese law allows for flush toilets connected to special chemical septic tanks, but these are unusual so the correlation is close.

A similar bias is evident in telephone service provided by the government-owned telephone company. Table 4 shows the number of residential telephone subscribers, and the ratio of residential to total subscribers. As late as 1960, only 12 percent of total telephone subscribers were residential, amounting to a miniscule 2.2 percent of total households. This was the result of biasing installations toward businesses, perceived as having a greater need for the increased convenience of telephones over telegram service. Any person wanting a telephone in their home at that time faced both a high cost (which deterred many) and a long wait. But by 1980, 68 percent of the subscribers were residential—having met the business need, the telephone company filled the pent-up demand for residential phone service by the late 1970s.

Other bits of evidence also support the bias away from spending on public amenities. Any one who had been to Japan in the 1960s, and again more recently, cannot help but be struck by the tremendous change in roads and sidewalks—Japan is a far less dangerous place to drive and walk now than it was a decade ago. The government role in providing public housing also increased over time. The ratio of government-funded housing investment to GNP in the national accounts hovered in a 0.34 to 0.41-percent range until 1964, and then rose to over 0.5 percent at the end of the 1960s. This rise in government commitment to housing parallels a rise in the proportion of GNP represented by residential housing investment, which was only 2.96 percent in 1955, but rose to around 7 percent by the end of the 1960s (see Table 5). Further evidence of this shift will be discussed below in considering the role of government lending institutions.

Part of these changes, especially in housing, reflects rising incomes and the high income elasticity of demand for housing. But government policy is in evidence as well, through such features of the Japanese financial system as the underdevelopment of consumer financing. And certainly a shift in the government role is evident in the rapid increase of spending for better and safer roads.

Table 3: Changes in the Quality of Life

Year	Number of Dwellings with Flush Toilets (millions)	Ratio to Total Dwellings (percent)
1963	1.9	9.2%
1968	4.1	17.1
1973	9.0	31.4
1978	14.8	45.9

Source: Prime Minister's Office, *Japan Statistical Yearbook*.

Table 4: Residential Telephone Service

Year	Number of Residential Installations (thousands)	Ratio to Total Installations (percent)	Ratio to Total Households (percent)
1960	448	12.3%	2.2%
1965	1,848	25.3	7.6
1970	6,834	45.0	24.5
1975	19,266	63.5	61.6
1980	26,189	68.0	76.8

Source: Prime Minister's Office, *Japan Statistical Yearbook*.

Table 5: The Share of Housing Investment in GNP

Year	Private Residential Housing Investment	Public Residential Housing Investment
1955	2.96%	0.34%
1956	3.18	0.38
1957	3.31	0.36
1958	3.50	0.41
1959	3.54	0.38
1960	3.98	0.31
1961	4.12	0.33
1962	4.40	0.40
1963	4.69	0.38
1964	5.21	0.36
1965	5.70	0.41
1966	5.68	0.43
1967	6.07	0.42
1968	6.36	0.44
1969	6.64	0.45
1970	6.67	0.53
1971	6.28	0.58
1972	6.96	0.51
1973	8.22	0.41
1974	7.38	0.53
1975	7.02	0.58
1976	7.34	0.54
1977	6.99	0.46
1978	6.88	0.50
1979	6.96	0.42
1980	6.52	0.38

Source: Bank of Japan, *Economic Statistics Annual*.

Macro "Plans"

The Japanese government produces two sorts of "plans" that have drawn the attention of foreigners—long-term macroeconomic plans produced by the Economic Planning Agency (EPA), and the industrial "visions" produced by the Ministry of International Trade and Industry (MITI). The MITI visions will be considered later as a microeconomic measure. The macroeconomic plans are not plans at all, but rather 5-to-10 year concensus forecasts of where the economy is going. The most recent forecast, approved by the cabinet in August 1983, makes this quite explicit by stating that because the plans are based on the principle of free competition, "they do not presume to prescribe in detail for all sectors of the economy or to rigorously force compliance."[28] For those interested in greater detail of the process by

[28] Author's translation of the *1980 Nendai Keizai Shakai no Tenbo to Shishin* (Vision and Guidance for Economic Society in the 1980s) p. 2.

which these plans are developed, they have been discussed elsewhere.[30]

Macroeconomic plans are put together by the EPA, but all major ministries have an input. The result is that they represent the lowest common denominator that will please all participants. The forecasts are buttressed by econometric models, but as with all models, the final results contain an element of adjustment to personal judgement and adjustment to government desires for the future. In addition, the plans become the basis for only a limited number of government policy decisions. Decisions on many major government policy issues (especially those involving the allocation of government finances) pay little or no heed to the plan forecasts. Therefore, it would be highly unrealistic to attribute to the plans a degree of importance equal to that of the French indicative plans of the earlier postwar period, for example.

The postwar plans are summarized in Table 6. None of the six plans that were

[30] See T. Watanabe, "National Planning and Economic Development," *Economics of Planning*, Vol. 10, 1970; or Ryutaro Komiya, "Planning in Japan," in Martin Bornstein, eds., *Planning East and West* (New York: Ballinger, 1975).

Table 6: Long-Term Economic Plans

Name:	Five-Year Plan for Economic Self-Support	New Long-Range Economic Plan	Doubling National Income Plan	Medium-Term Economic Plan	Economic and Social Development Plan
Period:	1956-1960	1958-1962	1961-1970	1964-1968	1967-1971
Cabinet:	Hatoyama	Kishi	Ikeda	Sato	Sato
GNP Growth:					
Forecast:	5.0%	6.5%	7.8%	8.1%	8.2%
Actual:	8.7%	9.9%	10.7%	10.6%	10.9%
Objectives:	Modernization of production facilities, promotion of international trade, reduction of dependence on imports, encouraging savings.	Improvement of infrastructure, heavy-industrialization, promotion of exports and encouraging savings.	Improvement of social overhead capital, improvement of industrial structure, rectifying the dual structure of the economy and improvement of social stability.	Modernization of low productivity sectors, efficient use of labor force, qualitative improvement of national life.	Stabilization of prices, improvement of economic efficiency, promotion of social development.

Name:	New Economic and Social Development Plan	Basic Economic and Social Plan	Economic Plan for the Second Half of the 1970s	New Economic and Social Seven-Year Plan	Outlook and Guidelines for Economic Society in the 1980s
Period:	1970-1975	1973-1977	1976-1980	1979-1985	1983-1990
Cabinet:	Sato	Tanaka	Miki	Ohira	Nakasone
GNP Growth:					
Forecast:	10.6%	9.4%	6%+	5.7%	4%
Actual:	5.9%	4.2%	5.7%	—	—
Objectives:	Improving economic efficiency from an international viewpoint, securing price stability, promotion of social development, maintaining adequate economic growth and cultivating development foundations.	Creating a comfortable environment, securing a stable and comfortable life, price stabilization, promotion of international cooperation.	Stability of prices and securing full employment, securing a stable life and improvement of environment, cooperation with and contribution to the development of the world economy, securing economic security and fostering long-term development.	Attainment of full employment and stabilization of prices, stabilization and enrichment of national life, cooperation in and contribution to the development of the world economy and society, ensuring economic security and further development, and reconstruction of public finance and new monetary responses.	Building a creative and stable society, maintenance of moderate growth to ensure full employment, price stabilization, attainment of external equilibrium, implementation of administrative reform to reduce government deficits.

Source: Economic Planning Agency

operative during the high growth era came particularly close to predicting the actual growth of the economy, with the plans consistently underestimating actual economic performance by a wide margin. Since high growth ended in 1973, the plans have tended to be overly optimistic. The major policy objectives listed for each also indicate the very broad and vaguely defined goals that tend to be included in such plans, which are not even necessarily mutually consistent.

Evidence from the last economic plan demonstrates that the plan tends to be revised to fit reality, rather than devising policies to change reality to the plan. The plan for fiscal years 1979-1985 included a projection for the real GNP growth rate and for public works expenditures that proved to be too high. The growth forecast was lowered almost each year; starting at 5.7 percent, real GNP growth expectations were lowered to 5.1 percent, and even that level may prove to have been unrealistic. The public works expectation grew out of the assumption in 1978 that the government needed to do more to use fiscal policy to stimulate the economy, but right from the beginning of the planning period in 1979 that assumption lost out to the Ministry of Finance's determination to cut government deficits. Once established, the plans are neither rigid nor a strict guide to future Japanese government policy.

If these long-term forecasts are not really blueprints or plans for government actions, what value do they have? To begin with, they do provide the government with a periodic concensus view of reasonable goals for the economy. This, in turn, provides a useful backdrop or starting point for government planning purposes, even if that view is a shifting one and not always adhered to. Economists have also suggested that the process of formulating the forecasts focuses business community attention periodically on the longer-run future of the country in a more coordinated way than is done in the United States. Also, in the early postwar years, the plans may have helped to raise business and public confidence in the future of the economy. Even though actual growth rates routinely exceeded the forecasts in the plans during the 1950s and 1960s, those forecasts were above public expectations when first announced.

Summary

Macroeconomic policy has often been left out of the discussion of industrial policy because it is not the sole jurisdiction of the Ministry of International Trade and Industry. At the macro level, policy is the province of a whole welter of actors—the politicians, the Ministry of Finance, the Economic Planning Agency, the Ministry of Foreign Affairs, the Ministry of Construction, the Ministry of Education and others. This necessarily means less unanimity of opinion, as well as greater diversity of policy goals, than when only MITI is considered. However, the elements of macroeconomic policy were shaped and managed in the 1950s and 1960s to feed into the common goal of helping the economy grow. As pointed out, the evidence of their importance or effectiveness varies, but at least they were designed to provide positive support. Today, the goals are much more diverse and coordination to promote economic growth is very muted as other social goals have come to dominate, a change that will be considered in greater detail later.

Import Policy

Commercial policy, which took the form of import barriers on goods and capital, was a major element of Japanese development strategy during the early postwar period. Protection—through the use of high tariffs and stringent quotas—was very heavy, but it also declined very rapidly from the mid-1960s, and today Japan no longer stands out in comparison to other industrial countries. This is a story that has often been told and is now quite familiar in the United States.

Quotas

A large percentage of Japanese imports—approximately 60 percent—were under quota until liberalization began in 1960. Liberalization proceeded swiftly, with 89 percent of imports freed from quota restrictions by 1963.[31] Progress has continued and now only 28 items remain under restriction, most of them agricultural products, very few of which are important to U.S.-Japan trade.

Unfortunately, restrictions on beef, citrus fruit and leather are among those 28 remaining quota items, and these have been a serious irritant in bilateral relations. The relevant point from the perspective of industrial policy, though, is that quotas are no longer being used to protect infant manufacturing industries with future potential for international competitiveness; those products that remain under quota represent uncompetitive, low-productivity agricultural activities or products that are protected for political reasons bearing little connection to the goals of economic development. The potential for fostering industries that can be competitive against imports in either case is remote. In this respect, Japan's use of quotas now corresponds to that of other industrial countries.

Tariffs

Tariffs show that same sort of decline as quotas. During the 1950s the tariff structure was set to allow raw materials to enter duty-free, with rates on manufactured products depending on the degree of protection deemed necessary. Luxury items also carried heavy tariffs as part of the policy to discourage consumption and encourage savings. When quotas were first liberalized in the 1960-1963 period, tariffs were revised, with rates on some 253 items actually rising, in an effort to discourage imports of items that were undergoing quota decontrol. Since that time, though, the direction of change has been consistently downward.

During the period when tariffs were high, the main impact was to favor raw material imports and all domestic manufacturing industries. That is, the degree of targeting particular industries or products for differential support or protection was minor; all manufacturers had a protected home market. One does hear occasional stories of particular industries that received a reclassification and reduction in applicable tariffs on some needed industrial machinery to their benefit, but the main impact remained a blanket protection for domestic production.

Despite the desire to use tariffs to protect domestic manufacturing industries, though, Japan was committed through its participation in the General Agreement on Tariffs and Trade (GATT) to join other nations in reducing tariffs. At the beginning of the 1960s, Japan faced strong criticism from other GATT members. The result has been a large and one-directional reduction in Japan's tariff levels since the mid-1960s. Today, the average tariff levels in Japan are lower than in the United States. High tariffs apply to only a few items and, as with quotas, most of these items are not in new, growing industries.

Nontariff Barriers

The situation on nontariff barriers is less clear. As quotas disappeared and tariff levels fell, there have been accusations that Japan has used other nontariff measures—restrictive standards, customs delays, lengthy testing procedures, etc.—to inhibit the importation of foreign manufactured products. As with other countries, there may be some truth to these charges, but not all of

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[31] Warren Hunsberger, *Japan and the United States in World Trade* (New York: Harper and Row, 1964), 133-137.

these represent cases where standards or regulations were specifically designed to inhibit imports. The more common pattern is that these measures were taken without regard to international considerations because imports were unimportant at the time, and were revealed to be out of line with international measures only later. A recent JEI publication covers the bilateral dialogue on these issues,[32] and this study will only briefly look at buy-domestic preferences as an example.

A buy-domestic preference has clearly characterized certain industries in the past in Japan. Among the examples are the Japanese National Railways, Nippon Telegraph and Telephone, and the computer industry. Unlike the United States, Japan has no laws specifying domestic preference in government purchases, but administrative policy tended to yield this result. As part of the ethos of building a stronger economy, combined with the imperative of correcting balance-of-payment deficits, there was a desire to use domestic products or replace foreign products with domestic ones as rapidly as practicable. One finds in the histories of technology on the Japanese National Railways, for example, a sense of great pride in being able to show the introduction of domestic railway equipment to replace imports.[33]

Buy-domestic practices have come in for severe criticism from the United States, as in the case of NTT and its preferences for buying from a small group of Japanese companies. This does not mean that such practices will necessarily come to a complete end for all possible industries or products, but that Japan cannot easily use a buy-domestic policy for industrial policy purposes without incurring the wrath of its trading partners, a fact that certainly inhibits the use of such policies. Communications satellites have recently been raised by the United States as another example of unfair buy-domestic policies (though the situation is far more complex and less clear-cut than in the case of NTT procurement), but it illustrates the wrath that such policies now engender.

Summary

During the 1950s and the early 1960s all of these import tools were used to encourage domestic manufacturing industries. By so doing, no one industry benefits over others. As put by Professor Hugh Patrick in recent testimony before Congress: "It is important to recognize that government policies which encourage all industries, as occurred in the 1950s and 1960s through import protection, in effect protect none differentially."[34] This is not to imply that commercial policy was unimportant to Japan's economic development; quite the contrary, protection from foreign competition was probably the most important incentive to domestic development that the Japanese government provided. That incentive, however, applied to virtually any industry that faced potential foreign competition.

A second important point is that the motivation for heavy import protection was not solely one of bringing economic growth and development; another major factor was the balance-of-payments constraint. Not wishing to devalue the currency when it was overvalued in the 1950s and early 1960s, one of the alternatives was to artificially control imports to bring about a better trade balance. The balance-of-payments problem was very closely related to the desire to promote industrial growth, but it may have brought an easier concensus between MITI (with its concern for industrial development) and the Ministry of Finance (with its concern for the balance of payments). It may also have meant that import protection had some additional legitimacy before organizations such as the IMF and the GATT, since nations with balance-of-payments deficits were expected under the Bretton Woods system to follow policies to reduce deficits and thereby protect the exchange value of their currencies.

Another important point about commercial policy in Japan is that since the early 1960s change has been one directional: Japan cannot now revert to putting in place explicit trade barriers to protect new industries. In an interview for this project, Mr. Yoshihisa Ojimi (the former vice-minister of MITI mentioned earlier) forcefully stated that over a period of years around the mid-1960s, MITI shifted to an objective of not returning to protectionism for the next generation of industries. For example, it would be highly unusual for Japan to use quotas, tariffs, new unusual standards, or overt buy-domestic preferences in order to promote emerging industries such as industrial ceramics, other new materials, or biotechnology. The international trade environment simply does not make this a feasible option for Japan. As recently stated by a MITI official, "As far as Japan's industrial policy is concerned, emphasis has shifted to more soft-handed measures."[35]

The statement that protection from imports was a significant element of industrial policy in the 1950s and 1960s should also be interpreted with some caution since import protection in Japan has not always had a beneficial impact. While often left out in discussions of industrial policy, one should not forget that the barriers to certain agricultural products have not been accompanied by rapid technical change or the industry restructuring that would raise Japanese agricultural productivity to international levels. All countries follow protectionist policies on agriculture. In Japan, as in other countries, the motivation is political and social rather than economic, with the result being that protection has been accompanied by increasing inefficiency.

The economic inefficiency of agriculture is important to keep in mind because Japan is too easily used as an example of the efficacy of protection for new industries. Import barriers were an important ingredient of industrial policy in Japan, but they had a positive benefit only to the extent that vigorous competition among the domestic companies brought the technical change and productivity growth that eventually made Japanese companies effective international competitors. Not all industries react to protection in the same way.

A final point about commercial policy is that too often Americans believe that Japan starts from a coordinated plan in which import protection is introduced in the early phase of an industry's development and is intended from the start to be phased out when the industry becomes competitive. This characterization does not fit the historical record. Japan, as pointed out above, protected virtually all industries in the 1950s. When liberalization began in the 1960s it was not the result of a far-sighted policy for now-matured industries; it occurred because of foreign pressure through GATT and Japan's desire to join the Organization for Economic Cooperation and Development (OECD). Chalmers Johnson comments: "There is no question that MITI, as a bureaucracy, feared that liberalization might eliminate its raison d'etre, and for this reason, if no other, it sought to

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[32] Japan Economic Institute, *Japan's Import Barriers: An Analysis of Divergent Bilateral Views* (Washington, JEI, 1982).

[33] Japanese National Railways, *Nihon Kokuyu Tetsudo Hyakunenshi* (The 100 Year History of the Japanese National Railways), in 13 vols. (Tokyo: Kotsu Kyoryoku-kai, 1973).

[34] Hugh Patrick, "Japanese Industrial Policy and Its Relevance for United States Industrial Policy," prepared statement to the Joint Economic Committee July 13, 1983, p. 17.

[35] Keiichi Konaga, "Industrial Policy: The Japanese version of a Universal Trend," *Journal of Japanese Trade and Industry*, July/August 1983, p. 21.

obtain new control powers."[36] Thus, the picture is one of blanket protection from the time the Occupation ended, and a piecemeal but steady reduction of barriers from the beginning of the 1960s. There is no evidence of a careful, preplanned shifting of the locus of protection from maturing industries to newly emerging ones in the postwar period.

Positive Microeconomic Industrial Policy

The seven types of positive microeconomic industrial policy measures listed in the introduction constitute the bulk of what people seem to imply when they use the word "targeting". Each of these is considered separately here, followed by consideration of the impact of these policies as a whole and in conjunction with other policies.

Government Forecasting and Planning

The macroeconomic plans issued by the Economic Planning Agency were considered in the previous section. At the microeconomic level the locus of activity is in the Ministry of International Trade and Industry's "visions", although MITI is not the only ministry to issue forecasts. These provide a ten-year forecast at a sectoral and industry level for those industries that fall under MITI jurisdiction, with the same combination of forecast plus government-desired outcomes as in the EPA long-term macroeconomic plans. Upon close inspection, the MITI visions are far from a blueprint for Japanese development.

As with the EPA long-term macroeconomic plans, the visions are couched in vague, general language and are designed to establish the catch-phrases that are so widespread in Japanese writing about the future. Whereas academics and commentators seem to establish the catch-phrases in the United States (such as "post-industrial society"), MITI seems to play that role in Japan ("heavy-chemical industrialization," "information society," etc.). When an industry is identified by MITI as important for the future economic development of the nation, it is described in very glowing terms and indications are given that government should encourage its development. However, the old adage "put your money where your month is" certainly applies, since the visions do not specify policies in any detail and the document does not represent any binding government commitment.

When visions venture to provide numerical forecasts, they have not proven to be particularly accurate. The 1976 vision predicted that the relative weight of the secondary sector (mining, construction and manufacturing) in the economy would continue to rise through 1985. It predicted, for example, that the share of total employment in this sector would rise from 35.2 percent in 1974 to 37.5 percent in 1985. This is not surprising since mining and manufacturing fall under MITI's jurisdiction, and by this time MITI officials were feeling very confident about the long-run international competitiveness of Japanese manufacturing. While the rest of the world moved to a "post-industrial" society (i.e., continued to shift resources out of manufacturing into service industries), Japan would remain the industrial heartland of the world. However, by 1981 the share of employment in Japan's secondary sector had fallen to 34.7 percent. For manufacturing alone, the prediction had been that its share of total employment would remain steady at 27 percent, but by 1981 it had fallen to 24.7 percent. The same basic results hold for predicted and actual shares in output.[37]

This example illustrates the fact that predicting the future is no easier in Japan than elsewhere. The tertiary sector has grown much more quickly than anticipated, and rather belatedly in 1980 the visions began to forecast a decline in secondary sector employment and at least a leveling off in the share of output in its projections to 1990.[38] Even these expectations were obsolete by 1983.

Another example, from a vision in the early 1970s, were the expectations for the aircraft industry. Aircraft were to be "one of the industrial monuments of the '70s."[39] Not only did the industry fail to become a monument of the 1970s, it is unlikely to make such stunning progress in the 1980s either.

Despite the forecasting errors, the visions do serve a useful role, in a way similar to the EPA long-term economic plans. The visions help to periodically focus business and public attention on the direction of the economy and help to define which industries are likely to grow or decline. Because it is an official document, the vision implies that MITI desires or favors the predicted future structure, even though it may not be able to place many government resources into directing that change. This is a useful function, but one could question whether a government-produced vision is necessary since the private sector is capable of generating its own views of the future, a point that will be considered later when looking at the planning and forecasting function in the United States.

Government Lending Institutions

Provision of loans through government-owned lending institutions is an important feature of Japanese policy, functioning in a way different from the case in the United States. While the system may function differently, though, the overall role of the government in providing financing is not far different from the United States.

The FILP—Rather than relying heavily on bond issues to fund government-related or sponsored organizations or activities (such as highway and airport development), Japan uses a system of postal savings deposits. Funds raised through the postal savings system, plus others from such sources as government-run pensions, postal life insurance and government-guaranteed bonds, are funneled through what is known as the Fiscal Investment and Loan Program (FILP). The basic structure of the sources and distribution of funds is shown in Table 7.

The money raised through the FILP is lent to a number of different institutions, including government-owned financial institutions, other government-owned corporations, special government accounts (such as hospitals and national universities), local governments and semi-government corporations, with the rest earmarked for investment in government bonds. Under the category of government-owned financial institutions, funds are lent to the Japan Development Bank (JDB), the Import-Export Bank (Eximbank) and a plethora of smaller financial institutions aimed at small business and the primary sector. Because the United States government does not have a financial program similar to the FILP, Japanese government lending institutions have become the target of some criticism from the United States.

In FY 1983, the FILP was expected to have ¥24.2 trillion ($102 billion at current exchange rates) in receipts, with ¥20.3 trillion ($84 billion) to be disbursed in policy loans and the rest available for purchase of government bonds. The first important feature about the lending of these funds is that much of

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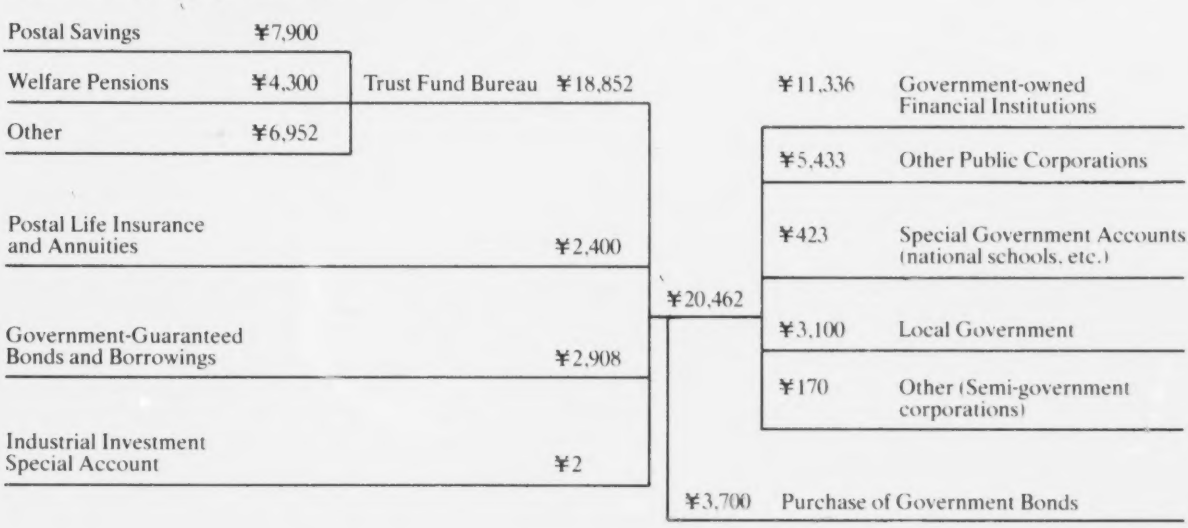
[36] Chalmers Johnson, *MITI and the Japanese Miracle* (Stanford: Stanford University Press, 1982), p. 249.

[37] Sangyo Kozo Shingikai (Industrial Structure Council), *Sangyo Kozo no Choki Bijion* (Long-Term Vision of Industrial Structure), 1976, pp. 82-83, 94-95.

[38] Sangyo Kozo Shingikai, *80 Nendai no Sangyo Kozo no Tenbo to Kadai* (The Vision and Themes of Industrial Structure in the 1980s), January 1981, pp. 8-9.

[39] Japan Economic Institute, "Japan's Aircraft Industry," *Council Report* No 2, January 11, 1980, p. 1.

Table 7: The Fiscal Investment and Loan Program
(in billions of yen, budget for FY 1982)


Postal Savings ¥7,900
Welfare Pensions ¥4,300
Other ¥6,952
Trust Fund Bureau ¥18,852
Postal Life Insurance and Annuities ¥2,400
Government-Guaranteed Bonds and Borrowings ¥2,908
Industrial Investment Special Account ¥2
¥20,462
¥11,336 Government-owned Financial Institutions
¥5,433 Other Public Corporations
¥423 Special Government Accounts (national schools, etc.)
¥3,100 Local Government
¥170 Other (Semi-government corporations)
¥3,700 Purchase of Government Bonds

Note: The Trust Fund Bureau and Postal Life Insurance and Annuities also buy government and commercial bank bonds outside of their involvement in the FILP.

Source: Prime Minister's Office, *Japan Statistical Yearbook*, and data from the Ministry of Finance.

it is not directed to government-owned financial institutions that lend to the private sector. These financial institutions absorbed only about one-half of the funds (¥11.3 trillion) with the rest going to other nonfinancial government-owned corporations (such as the deficit-ridden Japanese National Railways), special government accounts and local governments.

Why does Japan use this system rather than relying on direct bond issues by the ultimate recipients of the funds? As explained earlier, the Japanese financial system in general involves more intermediation than is the case in the United States, because of both saver preferences and industry needs during the early postwar period. This system also gave the Ministry of Finance more control over the various government-related organizations' and local governments' borrowing than would have been the case with independent bond issues by these organizations. This fits the more centralized nature of government authority in Japan than in the United States. Functionally, though, what Japan does through the FILP is largely what the United States does through a variety of kinds of bond issues—borrowing from the public for specific government-supported activities that are expected to earn a sufficient return to repay loans.

When examined in detail, the data do not support the American assumption that the FILP funds are a major cause of Japanese industrial success. Table 8 shows the official breakdown of FILP disbursements by functional type, comparing FY 1965 (during the high-growth era) to FY 1983. Most of these items are easily identifiable as activities receiving government support in all industrial countries. Even in 1965, the category called fundamental industry (in which targeted, leading-edge industries, among others, would fall) received only 7.8 percent of the total funds, and by FY 1983 this percentage had dropped to 3.0 percent (representing $2.6 billion at current exchange rates). While this is still a considerable sum of money, data presented below will demonstrate that leading-edge industries depend on loans

Table 8: FILP Loans by Functional Type: Budgeted Amounts, FY 1965 and FY 1983
(in billions of yen)

	Amount		Percentage Shares	
	FY 1965	FY 1983	FY 1965	FY 1983
Housing	¥226	¥5,273	13.9%	25.7%
Water supply, Sewers and Other Life Environment	201	2,629	12.4	12.8
Welfare	59	647	3.6	3.2
Education	49	748	3.1	3.7
Small Business	205	3,937	12.6	19.2
Agriculture, Forestry and Fisheries	117	940	7.2	4.6
Land Conservation and Disaster Reconstruction	51	416	3.1	2.0
Roads	128	1,519	7.9	7.4
Transportation and Communication	225	1,824	13.9	8.9
Development of Underdeveloped Regions	112	596	7.0	2.9
Basic Industries	126	619	7.8	3.0
Foreign Trade and Foreign Aid	122	1,315	7.5	6.4
Total	¥1,621	¥20,462	100.0%	100.0%

Source: Prime Minister's Office, *Japan Statistical Yearbook* and Ministry of Finance data.

Table 9: FILP Loans by Organization, Budgeted Amounts in 1983

	FILP Funds	Other Investment Sources*
Special Accounts		
Urban Development Fund	¥16.8	¥3.2
National Property Consolidation	5.1	13.0
River Conservation	0.9	3.0
National Hospitals	46.4	1.4
National Schools	33.3	147.4
Land Improvement	65.8	93.6
National Forests	205.0	10.1
Postal Service	49.7	75.4
Government-Owned Financial Institutions		
Japan Development Bank	809.0	267.5
Export-Import Bank	1,025.0	300.0
Housing Loan Corp.	3,594.8	−8.4
Medical Care Facilities Loan Corp.	91.4	7.2
People's Finance Corp.	1,947.0	1,107.7
Small Business Finance Corp.	1,660.0	517.1
Environmental Sanitation Finance Corp.	229.5	0.5
Agriculture, Forestry, and Fishery Finance Corp.	523.0	102.3
Finance Corp. of Local Public Enterprises	1,220.0	22.7
Hokkaido and Tohoku Development Corp.	128.4	15.6
Okinawa Development Corp.	107.5	11.4
Other Public Corporations		
Japanese National Railways	1,356.2	−675.7
Nippon Telegraph and Telephone (NTT)	140.0	1,440.0
Japan Housing Corp.	754.0	181.9
Pensions Welfare Services Corp.	767.2	313.3
Employment Promotion Project Corp.	7.7	61.4
Public Nuisance Prevention Corp.	43.3	20.7
Maritime Credit Corp.	30.6	12.9
Teito Rapid Transit	25.3	45.6
Regional Promotion Facilities Corp.	63.8	38.8
Foundation for Promoting Social Welfare Agencies	28.0	2.3
Labor Welfare Corp.	15.7	2.2
Japan Private School Promotion Foundation	44.6	30.9
Small Business Promotion Corp.	27.6	165.9
Agricultural Land Development Corp.	19.9	31.4
Forest Development Corp.	17.7	36.5
Japan Highway Public Corp.	1,163.2	1,141.2
Tokyo Expressway Corp.	142.9	102.0
Hanshin Expressway Corp.	104.2	108.9
Honshu-Shikoku Bridge Corp.	128.6	14.4
Japan Railway Construction Corp.	152.2	51.7
New Tokyo International Airport Corp.	20.0	31.3
Water Resources Development Corp.	76.4	12.1
Metallic Metals Industrial Corp.	3.6	5.4
Japan Petroleum Development Corp.	11.1	884.8
Overseas Economic Cooperation Fund	290.4	300.6
Local Government	3,100	4,441.1
Other		
Japan Air Lines	5.0	13.6
Electric Power Development Corp.	91.4	34.8
Central Bank for Commercial and Industrial Cooperatives	73.1	540.0
Total	¥20,462.3	

*"Other investment sources" measures the other borrowings and internal investment funds available to these organizations.

Source: Ministry of Finance.

from government institutions only to a minor extent.

Moving to a greater level of detail, Table 9 lists the specific institutions receiving loans from the FILP. As with the functional breakdown, this list shows that the majority of borrowers of FILP funds fall into categories that are similar to American patterns—housing, hospitals, schools, river control, medical facilities, subways, railroads, airports, agriculture, turnpike authorities, rural development agencies, and port authorities. Of these organizations, the only ones that clearly lend to leading industries are the Japan Development Bank and the Eximbank. Yet, of the funds lent through the FILP, only 3.9 percent went to the Japan Development Bank and 5.0 percent to the Eximbank (although these are supplemented to some extent through bond issues). These two institutions are discussed in more detail below.

Another way to consider the role or importance of the FILP is to look at the share of loans from government-owned financial institutions to total corporate borrowing. Table 10 provides data on outstanding bank loans from private sector and government financial institutions for a number of sectors and industries as of the end of December 1982. In general, reliance on government banks is low. Even the picture presented in this table is exaggerated since bank loans are by no means the only source of corporate investment funds.

Those sectors shown in Table 10 where the dependence on government financing is heaviest—especially agriculture and electric power—are either internationally acknowledged wards of the state or do not fit the definition of dynamic growth industries. In the manufacturing sector, 6.7 percent of the total ¥74.7 trillion ($337 billion) in outstanding loans is from government-owned financial institutions, but only 1.9 percent is from the JDB and 1.4 percent from the Exim Bank, with the rest from institutions catering to small business. Only three industries receive a noticeable percentage of their loans from the JDB—petroleum (9.7 percent), iron and steel (3.6 percent) and chemicals (3 percent). This will be explored in greater detail below.

The low degree of dependence on government loans in the manufacturing sector compares to 35.5 percent in the primary sector (agriculture, forestry and fisheries), 16.7 percent in mining, 17.2 percent in transportation and 29.4 percent in utilities. Some of this may be important for industrial development, by encouraging the expansion of necessary infrastructure, but the view that

Table 10: Government Financing by Industry – Outstanding Loans, December 1982
(in billions of yen)

Industry	Total Loans	From Government-Owned Financial Institutions: Total Amount	Total %	Japan Development Bank Amount	Japan Development Bank %	Export-Import Bank Amount	Export-Import Bank %
Manufacturing	¥ 74,709	¥ 5,016	6.7%	¥1,411	1.9%	¥1,075	1.4%
Textiles	7,166	349	4.9	39	0.5	9	0.1
Chemicals	7,776	375	4.8	264	3.3	36	0.5
Petroleum	3,272	323	9.9	316	9.7	1	0.0
Iron and Steel	7,401	608	8.2	263	3.6	246	3.3
Nonelectric Machinery	5,835	454	7.8	15	0.3	175	3.0
Electric Machinery	5,113	287	5.6	45	0.9	85	1.7
Transport Equipment	6,546	558	8.5	71	1.1	398	6.1
Primary Sector	34,287	12,175	35.5	4	0.0	1	0.0
Mining	1,548	259	16.7	78	5.0	156	10.1
Construction	16,206	636	3.9	12	0.1	81	0.5
Finance and Insurance	10,392	52	0.5	0	0.0	52	0.5
Wholesale and Retail	60,974	3,721	6.1	144	0.2	2,219	3.6
Real Estate	17,572	597	3.4	497	2.8	0	0.0
Transportation	10,922	1,883	17.2	1,491	13.7	112	1.0
Utilities	9,229	2,715	29.4	2,324	25.2	378	4.1
Services	20,854	702	3.4	335	1.6	112	0.5
Local Government	8,128	0	0.0	0	0.0	0	0.0
Total	¥264,821	¥27,756	10.5%	¥6,266	2.4%	¥5,942	2.2%

Note: Percentage figures refer to the percentage of total bank loans extended to an industry originating from the sector or institution indicated.

Source: Calculated from data in the Bank of Japan, *Economic Statistics Annual.*

internationally competitive manufacturing companies in Japan are targeted to receive substantial financial support from Japanese government financial institutions is fundamentally incorrect.

Support for Medium and Small Companies – Since much of the FILP money loaned to the private sector is directed toward small business, it deserves separate mention. "Medium and small business" in Japan is a legal term defined for policy purposes as companies with total assets of less than ¥100 million ($42,000), or with fewer than 300 employees (with different limits for wholesale and retail firms). This definition contained in the Medium and Small Industry Law determines eligibility for receiving financial aid.

Data on bank lending to these firms is provided in the government's annual white paper on small business. In 1981, ¥15.9 trillion ($66 billion), or 13.6 percent of all bank borrowings by firms in the medium-small category, were from government-owned financial institutions. Another 34.7 percent of their total bank borrowings came from private sector banks that are specialized by law in lending to small business (mutual banks, credit associations and credit cooperatives).[40] Thus, the small business sector is much more dependent upon government loans than is the corporate sector as a whole.

Not only does the small business sector depend more heavily upon the government to provide loans, it also benefits from a program of loan guarantees. These are available through two sources: the Small Business Credit Insurance Corporation and the Credit Guarantee Corporations (with one in each prefecture). Bank of Japan data show that outstanding loan-guarantee obligations of the Credit Guarantee Corporations at the end of 1982 amounted to ¥8.2 trillion ($34 billion).[41] For the Small Business Credit Insurance Corporation, the outstanding loan guarantees at the end of 1979 were ¥5 trillion ($20 billion).[42] As will be shown in the section on the United States, these levels of loan-guarantee support by the government are small in comparison to the United States.

The Japan Development Bank does not have support for the small business sector as part of its mandate, but some of its loans do benefit small business. The principal example at the moment is the Japan Robot Leasing Corporation (JAROL), a government-sanctioned company that provides financing for the leasing of industrial robots to medium and small companies. JAROL was established in 1980 and receives 40-60 percent of its funds from the JDB.

Why does the Japanese government focus so much more attention on small business than it does on industry in general? As in all countries, part of the reason is political; small business owners are voters and support the majority Liberal Democratic Party (LDP), so that it behooves the government to respond

[40] Ministry of International Trade and Industry, *Chusho Kigyo Hakusho* (White Paper on Medium and Small Business), 1982 edition, statistical appendix, p. 30.

[41] Bank of Japan, *Economic Statistics Annual* (1982), p. 155.

[42] Administrative Management Agency, *Tokushu Hojin Yoran* (Special Legal Entity Survey), 1980 edition, p. 147.

to their demands. A more economic reason for focusing loans on the small business sector is the fact that they face considerably higher interest costs on bank loans than do larger businesses. One study in the early 1970s found that "a capital-cost difference of at least 50 percent exists between large and small enterprises" and added that this differential far exceeded the interest-cost differentials by size of firm in the United States.[43] These differentials may have diminished somewhat over the past decade as the capital shortage disappeared and the large commercial banks (the 13 "city" banks) began more actively to seek other outlets for their money, but like the long-standing wage differentials by size of firm in Japan, the interest-cost differentials are likely to remain much larger than in the United States. Thus, one economic motivation of government policy is to reduce this rather extreme disadvantage that small companies face in raising capital.

This concept of Japanese industrial policy helping to overcome market-imposed disadvantages (relative to those of other countries) is an important one that will be considered in greater detail in evaluating the impact of Japanese policy. Small firms in Japan have had a severe disadvantage (relative to both larger firms in Japan and to small firms in other countries such as the United States) in raising capital. However, Japanese government policy was designed as an attempt to partially overcome that disadvantage, and not as a means to create a special advantage.

The Japan Development Bank — Any discussion of the financial side of Japanese government industrial policy must consider the Japan Development Bank (JDB), since it is different from any existing government institution in the United States and since it is the only government-owned bank in Japan involved in lending with a specific mandate to promote economic development. Many of the government lending activities discussed above do not seem very different from the United States, but some Americans believe that despite those similarities, the JDB remains a unique instrument for the support of internationally competitive Japanese industries.

That the Japan Development Bank is intended to support economic development is abundantly clear from its charter, which originally read: "The purpose of the Japan Development Bank is to supplement and encourage the credit operation of ordinary financial institutions by supplying long-term funds in order to promote economic reconstruction and industrial development."[44] This was amended in 1973, broadening the mandate from "industrial development" to "economic and social progress," reflecting the shifting goals of society.[45]

Much of what is assumed about the importance of the JDB seems to stem from reading this charter. However, when the bank's lending is analyzed in detail, one of the striking features is that very little money is aimed at targeted leading-edge industries. This does not necessarily mean that the JDB is not a useful instrument in Japanese industrial policy, just that American conceptions of what the JDB does and does not represent do not fit the record.

Returning to Table 10, those industries that received the most significant support from the JDB do not fit at the present time any concept of promoting new, growing industries. The leading manufacturing industries of the past decade have been nonelectric and electric machinery, but in 1982 the nonelectric machinery industry received only 0.3 percent of its outstanding bank loans from the JDB, while the electric machinery industry received only 0.9 percent from this source. The manufacturing industries that received higher levels of support are the same industries that were the object of industrial policy in the 1950s and early 1960s — chemicals (3.3 percent), petroleum (9.7 percent) and iron and steel (3.6 percent). If these industries are no longer considered the most important for continued Japanese economic development, one wonders why they still receive higher levels of support from the JDB. The same is true of mining, which has been in decline since the mid-1950s. But all of these industries pale, however, when compared to transportation and public utilities. Over half of all JDB lending is to these two industries, and the degree of dependence is high — 13.7 percent of all loans in the transportation industry and 25.2 percent of all loans to the public utilities.

What is true in the aggregate data by industry is even more true at the level of lending to individual companies, although the data must be viewed with some caution. Table 11 provides data on JDB loans to a number of representative companies, in a variety of different industries listed on the first section of the Tokyo Stock Exchange. However, many of these companies have small subsidiaries that may be receiving JDB loans. This may not show up in the data because the rules in Japan for consolidating accounts of subsidiaries for financial reporting are not as stringent as in the United States. Further detail would be useful, but the JDB does not release its records on individual company loans.

With that caveat on the coverage of the data in mind, Table 11 demonstrates that few major companies in the internationally competitive manufacturing industries receive major loan support. Virtually none of the major electronics companies show any significant loans from JDB; in fact, only three out of 12 major companies have any loans from the JDB at all (Fujitsu, Oki Electric and Casio). Some of these very successful companies have very little bank debt whatsoever, and none from government institutions.

This pattern of weak and scattered loans is true also for machine tools/robotics, with only one company (Okuma Machinery Works) showing a JDB loan — a very small loan comprising the firm's only debt. In the pharmaceutical/biotechnology field, Green Cross is the only major company to show a loan from the JDB. Of course, the data must be tempered by the fact that in the computer and robotics industries some funding has been given indirectly — through the Japan Electronic Computer Company and the Japan Robot Leasing Co. (both of which are explored below) — and as such does not show up in these data.

JDB loans are somewhat more prevalent among automobile firms, but even here only three of the six major firms shown had any loans from the JDB, and the levels of support in these cases is small. Interestingly enough, Honda — a company that earned the wrath of MITI in the 1960s for entering the auto industry — had the largest percentage of its debt from the JDB (6.4 percent). Loans to the auto parts industry are somewhat more widespread, but not included in the table because of the large number of firms in this industry.

This pattern of only very minor and scattered lending to lending sector firms contrasts markedly to the pattern in other industries. As shown in Table 11, every one of the top five steel companies shows significant loans from the JDB, although the levels are generally a small percentage of each firm's total bank borrowings. The contrast is strongest in the electric power, gas, and ocean shipping industries. Every electric power

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[43] Richard Caves and Masu Uekusa, "Industrial Organization," in Patrick and Rosovsky, eds., *Asia's New Giant*, pp. 509-510.

[44] Japan Development Bank, *The Japan Development Bank Law and Articles of Incorporation of the Japan Development Bank* (Tokyo: Japan Development Bank, 1958), p. 1.

[45] Japan Development Bank, *Annual Report*, 1973.

Table 11: Japan Development Bank Lending by Company

Industry/Company	Loans from JDB (¥ million)	JDB Loans as Percent of Total Bank Borrowing	JDB Rank Among Other Lenders	Comments
Automobiles				
Toyota	¥ 0	0.0%	–	no bank debt
Nissan	1,700	0.8	18	
Toyo Kogyo	0	0.0	–	
Fuji Heavy Industries	0	0.0	–	
Honda	6,670	6.4	6	
Suzuki	305	1.4	10	
Electric/Electronic Equipment				
Hitachi	0	0.0	–	
Fujitsu	3,257	2.3	11	
Oki Electric	7,902	9.0	2	
Toshiba	0	0.0	–	
Mitsubishi Electric	0	0.0	–	
NEC	0	0.0	–	
Matsushita	0	0.0	–	no bank debt
Sony	0	0.0	–	
JVC	0	0.0	–	little bank debt
Kyocera	0	0.0	–	little bank debt
Fanuc	0	0.0	–	little bank debt
Casio	950	18.2	3	
Yaskawa Electric	0	0.0	–	
Machine Tools/Robotics				
Aida Engineering	0	0.0	–	little bank debt
Makino Milling Machines	0	0.0	–	little bank debt
Hitachi Seiki	0	0.0	–	
Okuma Machinery Works	200	100.0	1	Okuma's only bank loan
Toshiba Machine	0	0.0	–	
Ikegai Iron Works	0	0.0	–	
Tsugami	0	0.0	–	
Sonoike	0	0.0	–	no bank debt
Washino	0	0.0	–	
Amada	0	0.0	–	no bank debt
Toyoda Machine Works	0	0.0	–	no bank debt
Yaskawa Electric (see above)				
Fanuc (see above)				
Other Nonelectric Machinery				
Komatsu	0	0.0	–	
Kubota	0	0.0	–	
Ebara	0	0.0	–	
Chiyoda Chem. Engineering	0	0.0	–	
Nippon Seiko	0	0.0	–	
Brother Industries	0	0.0	–	
Pharmaceuticals				
Takeda Chem. Industries	0	0.0	–	
Sankyo	0	0.0	–	
Shionogi	0	0.0	–	
Tanabe Seiyaku	0	0.0	–	
Eisai	0	0.0	–	
Fujisawa	0	0.0	–	
Taisho Pharmaceuticals	0	0.0	–	
Green Cross	1,319	16.4	2	only 5 lending banks
Kaken Chemical	0	0.0	–	

Table 11 continued on next page

Table 11: Japan Development Bank Lending by Company (Continued)

Industry/Company	Loans from JDB (¥ million)	JDB Loans as Percent of Total Bank Borrowing	JDB Rank Among Other Lenders	Comments
Iron and Steel				
Nippon Steel	49,573	4.3	4	
Kawasaki Steel	22,804	2.9	11	
Nippon Kokan	83,872	8.3	3	
Sumitomo Metals	37,791	4.7	6	
Kobe Steel	17,589	2.8	11	
Electric Utilities				
Chubu Elec. Power	160,164	18.9	1	
Kansai Elec. Power	231,486	15.4	1	
Chugoku Elec. Power	88,868	16.2	2	
Hokuriku Elec. Power	51,554	22.4	1	
Tohoku Elec. Power	93,607	17.4	1	
Shikoku Elec. Power	97,185	25.0	1	
Kyushu Elec. Power	166,199	21.9	1	
Hokkaido Elec. Power	106,399	27.6	1	
Tokyo Elec. Power	620,694	19.4	1	
Gas				
Tokyo Gas	61,183	34.8	1	JDB largest by factor of 5
Osaka Gas	65,354	36.6	1	JDB largest by factor of 3
Toho Gas	13,477	28.6	1	
Hokkaido Gas	0	0.0	—	little bank debt
Hiroshima Gas	8,328	44.0	1	JDB largest by factor of 4
Saibu Gas	19,909	56.6	1	JDB largst by factor of 4
Hokuriku Gas	0	0.0	—	very little bank debt
Keiyo Gas	4,627	32.0	1	
Chubu Gas	1,033	11.3	3	
Ocean Shipping				
NYK	144,459	45.8	1	
Japan Line	45,365	36.7	1	
Mitsui O.S.K.	92,400	42.9	1	
Yamashita-Shinnihon	46,103	37.0	1	
Kawasaki Kisen	53,333	32.3	1	
Showa Line	33,446	36.3	1	
Private Railways				
Tobu	54,926	18.5	1	
Seibu	37,372	26.3	1	
Keihin Kyuko	54,991	21.6	1	
Odakyu	40,343	17.6	1	
Keio Teito	30,033	16.9	1	
Kinki Nippon	81,460	31.2	1	

Source: Toyo Keizai, *Kigyo Keiretsu Soran* (Business Groupings Survey), 1983 edition.

company in Japan has the JDB as its largest or second largest lender, with the percentages relative to total bank borrowings ranging from 15 to 28 percent. The picture is similar for gas companies, and only two small companies with very little bank debt have avoided heavy reliance on the JDB. In ocean shipping, all of the big six firms show the JDB as their number-one lender, with the levels of dependence ranging from 32 percent to 45 percent. The support is so widespread in these industries, and the degree of dependence of each firm on JDB is so high, that the government's commitment is obvious to all.

However, the data must be tempered by two considerations. First, in the computer and robotics industries JDB support is indirect, provided through the equipment leasing companies established to assist these industries or through the small subsidiaries of these large corporations, as mentioned above. Second, in some industries the assistance is provided directly to the purchasers rather than the manufacturers. For example, the Small Business Finance Corporation and the Peoples Finance

Corporation provide low-cost loans for the purchase of robots. The budget for these loans in FY 1980 was ¥5.8 billion ($24 million).

What emerges from this pattern of lending is the conclusion that the Bank of Japan's role is not to act as a catalyst to bring resources into leading industries, but to pump capital into industries with traditionally low profit rates. The focus is on industries that have trouble raising capital in the market because of their low rates of return, but which the government feels are an important and necessary underpinning of economic growth. Transportation and electric power fit this description well.

Judging from U.S. experience, both transportation (or at least certain parts of the transportation industry) and utilities often have difficulty achieving the same rates of return as manufacturing. In Japan this was true in both the 1960s and in more recent years. According to Table 12, three industries which received substantial assistance from the JDB—electric power, transportation and iron and steel—had rather consistently lower profit rates than was the case for all industry or manufacturing. The situation in mining is less clear since its profitability has been extremely volatile.

Even in the era of stronger industrial policy actions during the 1960s, JDB loans were heavily skewed toward transportation and utilities, with these two industries absorbing 70 percent of total outstanding JDB loans in 1964. At that time machinery, an important emerging industry, received only 4 percent of JDB loans. This compares to 60 percent and 1 percent, respectively, of total JDB loans going to these two industries in 1982. Thus, support for transportation and electric power has been long-standing and heavy, but support for machinery has never been high and has fallen.

One assumption often made about JDB loans is that they represent a considerable interest rate advantage to the borrowing companies, forming an implicit subsidy. However, the JDB is constrained to lend at higher rates than those at which it borrows (mainly from the FILP). This places a floor on JDB rates that is not necessarily far below commercial interest rates. The JDB also has a number of different interest rates depending on the purposes of the loans, and the higher rates are little different from market rates. At the end of 1983, for example, the basic loan rate at the JDB was 8.2 percent, exactly equal to the long-term prime rate. Unlike commercial banks, the JDB does not apply compensating balance requirements to its borrowers (which raise the effective interest rate on loans at commercial banks above the prime rate), but still the interest-cost advantage of loans from the JDB is not large.

However, the lack of a significant interest cost advantage is not necessarily the only basis on which to judge the advantage of a JDB loan to a corporation, since there is an oft-repeated statement in Japan that it was not the size of JDB loans that counted for emerging industries. A loan from the JDB, according to this proposition, opened doors to greater loans from commercial banks because it indicated implicit government support for that company. In U.S. terms, this would mean that JDB loans were an implicit loan guarantee for a company's other borrowings—and this comparison is considered later in the section on the United States. Other than the small business loan guarantees described above, and limited JDB loan guarantees on foreign currency borrowing for aircraft purchase, Japan does not use explicit loan guarantees. There may be some truth to the statement that JDB loans opened doors to commercial bank loans, but that assertion is never accompanied by examples of any companies that so benefited.

Long-Term Credit Banks—In addition to the Japan Development Bank, some observers of Japan point to the long-term credit banks as arms of Japanese government industrial policy. Japan has three long-term credit banks and seven trust banks, all of which are mandated by law to make long-term loans (while other commercial banks are to make short-term loans). If any of these banks should reflect government policy, it would be the Long Term Credit Bank of Japan (LTCB) and the Industrial Bank of Japan (IBJ).

When originally established in 1952, the LTCB had 50 percent government ownership, but later it became completely private. Looking back to the 1960s, there is no doubt that the LTCB saw itself as a part of government policy. Consider the following statement from its annual report of 1963-1964: "Responding to the brisk demand for industrial capital funds, our Bank, specializing in long-term financing, endeavored to supply smoothly long-term industrial funds in co-operation with the Government."*

How does the lending of the LTCB compare to other banks? Table 13 provides some evidence on this, comparing the industry breakdown of LTCB lending to that of all banks in 1964. Relative to other banks, the LTCB in 1964 did have a greater proportion of its loans in manufacturing than did all other banks, although one could attribute part of this difference to the restriction of the LTCB

* Long-Term Credit Bank of Japan, Ltd., *Annual Report 1963-1964*, p. 3.

Table 12: Ratio of Profit to Net Worth

	1961-1965					1976-1980				
	1961	1962	1963	1964	1965	1976	1977	1978	1979	1980
All Industry	20.8%	17.7%	19.3%	18.2%	16.7%	20.6%	20.3%	23.9%	28.4%	27.4%
Manufacturing	22.7	17.9	19.3	17.7	15.2	18.9	19.5	22.6	30.1	26.2
Iron and Steel	17.6	4.5	11.7	11.8	7.2	0.6	0.3	25.2	41.1	31.3
Mining	7.5	5.9	18.9	20.3	27.5	−1.0	1.1	16.8	118.0	108.0
Transport and Communication	15.1	16.1	16.2	15.3	14.7	7.4	6.8	8.7	19.9	17.8
Electricity and Gas	5.8	5.6	10.9	10.6	10.8	9.0	12.8	10.7	−5.1	37.0
Land Transportation	15.6	16.6	18.1	15.8	14.5	9.1	9.6	11.5	20.8	14.3
Water Transportation	n.a.	n.a.	n.a.	n.a.	n.a.	−0.7	−5.3	5.9	18.7	19.8

Notes: 1. For the 1960s, the profit measure is *junrieki*, which includes non-recurring profits and losses; for the 1970s it is *keijo rieki*, which excludes non-recurring items.

2. The category labeled electricity and gas includes gas utilities in the 1960s, but not in the 1970s.

Source: Calculated from data in Prime Minister's Office, *Japan Statistical Yearbook*.

Table 13: Long-Term Credit Bank: Relative Distribution of Loans, March 31, 1964

	Long-Term Credit Bank		All Banks			
			All loans		Plant and Equipment Loans	
	Total	Loans to Manufacturing	Total	Loans to Manufacturing	Total	Loans to Manufacturing
Manufacturing	60.1%	100.0%	49.8%	100.0%	50.7%	100.0%
Textiles	(5.6)	9.4	(7.3)	14.6	4.7	9.2
Pulp and Paper	(3.2)	5.3	(2.3)	4.6	(2.9)	5.8
Chemicals	(9.8)	16.4	(6.1)	12.2	(9.9)	19.4
Iron and Steel	(11.1)	18.5	(2.1)	4.2	(8.7)	17.1
Nonelectric Machinery	(3.3)	5.6	(3.6)	7.2	(2.1)	4.2
Electric Machinery	(6.9)	11.4	(5.0)	10.0	(3.8)	7.5
Transport Equipment	(5.1)	8.5	(4.8)	9.6	(3.9)	7.7
Mining	3.0		1.6		2.6	
Transportation	9.9		4.2		11.0	
Electricity, Water and Gas	15.2		2.2		11.0	
Other	11.9		42.2		24.7	
Total	100.0		100.0		100.0	

Note: The percentages for the individual industries within the manufacturing sector do not add up to 100 percent because only selected industries are included in the table.

Source: Long-Term Credit Bank of Japan, Ltd., *Annual Report 1963-1964*, and Bank of Japan, *Economic Statistics Annual*.

to long-term loans; the manufacturing sector invests in more plant and equipment than other sectors, and thus has a greater need for the long-term loans in which the LTCB concentrates.

The distribution of LTCB loans within the manufacturing sector was not very different from other banks in 1964, providing the comparison is made to plant and equipment loans by other banks. However, if the comparison is to all loans, then the LTCB stands out in two ways: it lent relatively less to textiles and relatively more to iron and steel. This may indicate that, at least in the 1960s, the LTCB was a significant component of Japanese industrial policy.

The Industrial Bank of Japan (IBJ) is also a "policy" bank in the same way as the LTCB. It was established in 1902 as a special bank under the supervision of the government. The special bank system was abolished during the occupation period in 1950 and the IBJ was transformed into an ordinary bank. Despite the official ending of government supervision, Japanese observers consider the IBJ to remain close to MITI policy aims.

Table 14 presents data on the lending pattern for the IBJ in 1982. Just as with the LTCB, its lending is skewed toward the manufacturing sector. A greater share of its loan portfolio is in the three specific manufacturing industries identified in its annual report (chemicals, petroleum, and iron and steel) than is the case of the banking sector as a whole. In addition, it has put a larger portion of its loan portfolio into electric power and the wholesale and retail industries. Once again, one is left with the dilemma of the extent to which this pattern reflects government policy and to what extent it reflects the long-term loan mandate for the bank. The evidence suggests the latter interpretation, since neither chemicals nor petroleum are industries that are growing in Japan.

As private sector banks, the LTCB and IBJ can also hold corporate stock, up to 5 percent of a corporation's stock issue. Therefore, another tie that identifies the IBJ as a policy bank is the fact that it is the largest stockholder in Nippon Steel Corp. (holding 2.95 percent of the outstanding stock). The IBJ is also the largest lender to Nippon Steel, accounting for 9.3 percent of the company's outstanding bank loans as of March 1982. While this might indicate a close relationship with the government, since the creation of Nippon Steel was a strong MITI desire in the 1960s, its relevance to industrial policy goals at the present time is questionable.

The other evidence for a policy role is that the IBJ is the managing underwriter for 99.7 percent of government-guaranteed bonds (bonds issued by government-owned corporations such as the Japanese National Railways) and 63.5 percent of electric utility bonds, compared to a much lower profile (on the order of 30 percent) for other industrial bonds.[47] It is difficult to attach much significance to this concentration, however, except perhaps for convenience to the government.

Some observers have alleged that a loan from the LTCB or IBJ carries the same implicit loan guarantee that was discussed above with regard to the Japan Development Bank. If that allegation were true, then the Japanese government would be providing an implicit guarantee for the bank debts of a remarkable percentage of Japanese business, since the IBJ alone lends to 73

Table 14: Industrial Bank of Japan Outstanding Loans, March 1982

Industry	Industrial Bank of Japan	All Banks
Manufacturing	39.7%	30.5%
Chemicals	(7.0)	(3.6)
Petroleum	(4.2)	(1.5)
Iron and Steel	(6.8)	(3.0)
Non-manufacturing	60.3	69.5
Electric Utilities	(14.2)	(2.5)
Wholesale and Retail	(9.2)	(2.4)

Source: Industrial Bank of Japan, *Annual Report 1982*; Bank of Japan, *Economic Statistics Annual, 1982*.

[47] Industrial Bank of Japan, *Annual Report*, 1982, p. 20.

percent of the companies listed on the Tokyo Stock Exchange (630 companies). If the companies receiving loans from the LTCB or the JDB are added to this total, the result would be a ludicrously broad guarantee that would provide little or no signal to other private sector banks as a guide for their own lending; the proposition of these banks as signals is simply reduced to an absurdity.

Conclusion—The role of government financing has been rather similar to patterns in other countries when viewed as a whole. When focusing on those loans extended by the JDB or the private sector policy banks, the pattern does not support the notion of extensive support for new or growing industries. The actual role indicated by this lending is strong, clear government support for physical infrastructure (transportation and utilities) plus a limited number of industries that have had the interest of the government since the early postwar period (steel, petroleum and chemicals, for example). Even with these industries, separating the bias due to policy decisions and the bias due to the long-term nature of the loans extended is difficult.

Government Direct Subsidies

Direct subsidy is a form of government aid not heavily used in Japan. This point has been made by all Americans knowledgeable about the Japanese economy. Professor Gary Saxonhouse stated in his testimony to the International Trade Commission:

> In striking contrast with the policies of some European countries where large sectors of the economy are publicly owned and where large subsidies may be given such enterprises in order to maintain employment in otherwise unprofitable enterprises, there is very little in the way of direct subsidies and grants given to manufacturing industries in Japan.[48]

In his own testimony to Congress, Philip Trezise, of the Brookings Institution, listed those sectors that do receive some subsidy in Japan in descending order of magnitude as agriculture, energy, small business, the railways and research and development. He concluded that this pattern of subsidy was unremarkable in international comparison, as was the political motivation for providing subsidies.[49]

Subsidy often accompanies government ownership of industry, and in this respect Japan is more like the United States than the European countries in its low level of nationalization of industry. Only three important commercial organizations are owned by the government: the Japanese National Railways, the Nippon Telegraph and Telephone Public Corporation, and the Japan Tobacco and Salt Company. Railways and telephone companies are commonly nationalized in other countries, and the tobacco and salt monopoly is the result of prewar history.

The Japanese National Railways (JNR) is the only one of these three government-owned companies which receives large subsidies. In fact, any government-owned corporation that earns a profit is required by law to turn its profits over to the government. These corporations are not supposed to operate at a deficit, and because of this they are expected to issue bonds to cover their needs until profits return.

JNR operates the basic trunk-line rail network of the country, plus a substantial portion of the feeder lines. As in other countries, it has suffered from a declining share of the passenger and freight transportation market, from political decisions to maintain service on lightly used rural lines, and pressures to build poorly-conceived new lines. In all industrial countries passenger railroads fail to operate at a profit, and Japan's experience is unexceptional.

The railroad's deficits, and the public tolerance of them (albeit grudging), represent a commitment to maintaining what is regarded as an essential public service (the "feet of the citizens" as some Japanese analysts put it). Representing the government's reluctance to pour money into subsidies, though, JNR's deficits have been the target of a long series of investigations and it has operated since the late 1960s with a succession of "rehabilitation" plans aimed at reducing or eliminating them. The widespread criticism of JNR operating deficits, and with it attacks on perceived inefficiency of the railroad, indicate the Japanese resistance to subsidies as a tool of policy.

One of the other recipients of subsidies is the shipping industry, another industry that has been the target of government assistance around the world. As noted above, it is one of the few industries that has borrowed heavily from the Japan Development Bank. The government provides an interest-rate subsidy on shipping company borrowings to finance the construction of new ships. This peaked at ¥15.3 billion ($64 million) in FY 1972; in FY 1981 it was only ¥6.5 billion ($27 million) and was spread across 42 companies. In addition, a one-time 5-year grace period was granted in the early 1960s in paying the interest on loans from the JDB. Compared to the United States, this represents a very modest subsidy level for this industry.[50]

The aircraft industry has also received some subsidy in the form of government money put into the jointly owned corporations to build new aircraft (discussed below) that was "success contingent." For example, MITI has supplied an estimated ¥16.8 billion ($70 million) to the CTDC (Civil Transport Development Corporation), out of an estimated ¥33.6 billion in total development costs. These monies were to be repaid only if the project was commercially successful. However, most of this type of government funding is so closely related to research and development support (rather than general operating subsidies) that it is discussed separately below.

Given the general reluctance to use subsidies, they are not the preferred bail-out route in dealing with major companies that are in financial danger. Toyo Kogyo, the maker of Mazda cars, was close to financial collapse after the 1973 oil shock made its fuel-inefficient rotary engine unattractive to the market. Following discussions between MITI and Sumitomo Bank (the largest lender to Toyo Kogyo), the bank decided not to force the company to declare bankruptcy and took the lead in restructuring the company. No government money—either direct subsidy or explicit loan guarantees—was involved.

Another example of avoiding subsidies to declining industries are the two laws relating to structurally depressed industries. The Structurally Depressed Industry Law of 1978 and the Law for Structural Improvement of Designated Industries of 1983 provide no direct subsidy. The 1978 law did provide a fund granting low cost loans to finance the scrapping of plant and equipment, but no direct operating subsidies.

Government R&D Policy

Financial Support—All industrial nations support research and development in their countries, and Japan is no exception. The latest available data show that Japan spent ¥4.7 trillion ($20 billion) on R&D in FY 1980 (excluding social science research), an amount that came to 2.42 percent of national income (NI) or 1.96 percent of GNP. Of this amount the government spent ¥1.2 tril-

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[48] Gary Saxonhouse, "Tampering with Comparative Advantage in Japan?," Statement to the United States International Trade Commission, June 15, 1983, p. 4.

[49] Philip Trezise, "Statement to the Joint Economic Committee of the U.S. Congress," July 13, 1983, pp. 2-3.

[50] Japan Economic Institute, "The Maritime Industries of Japan and the United States," *JEI Report*, No. 26A, July 15, 1983.

lion ($5 billion), or 25.8 percent of the total. This share has been slipping from levels as high as 32 percent in 1966.[51] None of these figures are exceptional in international comparison, as will be discussed in the section on the United States.

Only a tiny fraction of the government support for R&D finds its way directly to industry; virtually all of it is spent in government laboratories or is funneled to universities. Only 1.9 percent of corporate research and 10.4 percent of private-sector research institute R&D was supported directly by the government.[52] This does not mean that research at either government or university laboratories is not industrially relevant, considering the government research in areas such as robotics, but the fact remains that little research money is turned over directly to the private sector.

However, Japanese government data include only what is granted directly by government agencies. The Japan Development Bank also provides some loans for R&D purposes. New loans for industrial R&D in FY 1982 came to ¥46.1 billion ($196 million).[53] These are loans and not grants, and the amount is modest—less than 4 percent of the size of government direct grants. The amount in FY 1982 was also lower than it had been in 1979 (¥51.2 billion). Of course, JDB data may understate its actual support of R&D because other JDB loans may contribute to what Americans would consider product development, but these are the loans that are explicitly for that purpose. Apparently some industries shy away from JDB loans for R&D because the process brings in MITI, which reviews the project before loan approval is granted, and that involves disclosure of information that companies may wish to keep confidential.[54]

Another important caveat about Japanese government data on R&D is that they include only what is disbursed by the ministries and agencies through the general account and special account budgets. The figures do not include money disbursed by government-owned corporations such as JNR or NTT since, as separate corporations, they are not part of government budget accounts. JNR itself spends very little on R&D, but mainly because most of the railroad-related R&D is done by its suppliers working closely with the railroad.[55]

NTT is another example of a close relationship between a government-owned corporation and its suppliers engaged in R&D. From the conflict between the two countries over NTT procurement practices, NTT has explicitly acknowledged the practice of research projects with a guarantee of eventual procurement contracts if the development process is a success (Track III of the procurement process in the agreement between the two countries signed in 1980).

Because of the R&D funded through these two major government-owned corporations, the Japanese statistics on government-funded R&D understate what one might consider to be actual government support. Both of these two corporations have considerable independence from direct government control, so that their R&D goals may not correspond to that of government ministries, but the fact remains that they are owned by the government. This exclusion makes international comparison more difficult, but even if the data included the activities supported by these two companies, it is unlikely that Japan would stand out internationally in support of R&D.

Joint R&D—One of the features of Japan's R&D policy that has attracted attention and criticism in the United States is R&D carried out jointly by firms in an industry. The principle example of this was the well-known project on very large-scale integrated circuits (VLSI) of the late 1970s, but very little has been said in the United States about whether or not this practice is widespread in Japan.

The word "joint" may itself be something of a misnomer. The VLSI project was one of only a few joint R&D projects in Japan that actually involved joint work in a common research facility. The common pattern for other projects that might be labeled joint research is for research to be carried out through separate activity by the individual companies, although the entire project is united around a general theme.

[51] Science and Technology Agency, *Kagaku Gijutsu Hakusho* (Science and Technology White Paper), 1982 edition, p. 384.

[52] Ibid., p. 185.

[53] Japan Development Bank, *JDB Fact Book 1983*, p. 16.

[54] Wheeler, Janow and Pepper, p. 122.

[55] Edward J. Lincoln, *Technical Change on the Japanese National Railways, 1949-1974* (Diss. Yale University, 1978), pp. 50-52.

Table 15: Authorized Cartels in Japan, 1953-1982
(Number of cartels as of March 31 of each year)

	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
Antimonopoly Law: Recession Cartels	—	0	0	0	1	1	5	4	3	0	1
Antimonopoly Law: Rationalization Cartels	—	0	0	4	6	6	8	9	9	11	11
Import-Export Trade Law, 1952-	0	6	14	37	71	93	150	172	193	199	202
Designated Electronics and Textiles Industry Rehabilitation Law, 1971-1978	—	—	—	—	—	—	—	—	—	—	—
Medium-Small Industries Association Law, 1953-	53	71	143	194	218	280	314	370	467	549	591
Liquor Industry Law, 1953-	0	2	4	4	7	8	9	9	9	9	9
Sanitation Industry Law, 1957-	—	—	—	—	—	0	0	0	5	63	95
Fishery Export Industry Promotion Law, 1954-	—	—	0	8	8	11	10	11	10	11	11
Coastal Shipping Association Law, 1957-	—	—	—	—	—	1	9	10	12	13	16
Textile Industry Facilities Law, 1956-1970	—	—	—	—	0	0	2	7	4	3	3
Depressed Industries Law, 1978-1983	—	—	—	—	—	—	—	—	—	—	—
Other	0	0	1	1	1	1	2	3	2	10	12
Total	53	79	162	248	312	401	509	595	714	868	951

Source: Fair Trade Commission, *Kosei Torihiki Iinkai Nenji Hokoku* (Annual Report of the Fair Trade Commission), 1982.

The reason for this pattern of limited cooperation is that, in many instances, a firm must belong to an industry research association in order to receive conditional loans from the government for R&D.[*] If these research associations are equated with joint research, 54 had been approved under the Industrial Technology Association Law, with 38 still in operation in 1982. Theoretically these associations provide a benefit by reducing overlapping research among companies even if there is no true joint work. Since firms have the option of engaging in duplicative research with their own funds, though, it remains unclear to what extent the government is able to eliminate duplication. At a more fundamental level, it remains unclear whether coordination and elimination of duplication through this means provides a national advantage in international competition.

The history of the VLSI project indicates that true cooperation in joint research is not easy to achieve in Japan. Even with this project, much of the money did not go into work undertaken at the joint laboratory. In its attack on Japan's industrial policy, the Semiconductor Industry Association (SIA) in the United States emphasized the money put into this project by the Japanese government: "MITI organized joint R&D projects which reduced R&D costs per firm to a fraction of the level they would have been absent such projects."[*] But MITI's subsidy of this project is relatively small in comparison to total R&D spending by these companies. The VLSI project spent ¥71 billion ($295 million), of which the government supplied ¥30 billion ($125 million). This is not a large sum of money when viewed in an international context, as will be shown in the section on the United States.

The importance of the VLSI project, or joint R&D in general, is difficult to evaluate. The companies involved in this particular project are very large and are R&D intensive in any case, and it is entirely unclear that the government really gave them their competitive edge through this program. Any evidence for the SIA charge that the project resulted in R&D costs that were a fraction of what would have otherwise been the case is almost nonexistent (they rely on one quotation from a Japanese scientist). A bit of countervailing evidence is that one of the 6 Japanese producers of 64K RAMS (the production technologies for which were the focus of the VLSI project), Oki Electric, was not a participant in the project. Also, as a recent JEI Report indicates, the reasons for Japan's initial success in the world 64K RAM market were complex, and one can by no means sustain the SIA contention that Japan "captured" the world 64K RAM market.[*]

[*] Wheeler, Janow, and Pepper, p. 147.

[*] Semiconductor Industry Association, *The Effect of Government Targeting on World Semiconductor Competition* (Cupertino, CA: The Semiconductor Industry Association, 1983), p. 19.

[*] Japan Economic Institute, "U.S.-Japan Competition in Semiconductors," *JEI Report*, No. 30A, August 12, 1983.

Government Endorsement of Collusive Activity

Americans have the perception that Japan allows much more collusive activity within its industries and that by so doing gains an advantage in world trade. While it is true that certain practices that are not legal in the United States are tolerated or encouraged in Japan, any argument that this has been a significant factor in current Japanese competitiveness is difficult to sustain. The differences between the two countries are evident in both antitrust law and in special legislation for particular industries.

Antitrust Law. Japan has an antitrust law based primarily upon U.S. law which was enacted during the Occupation period. As in the United States, various kinds of collusive activity by business are prohibited and the Japan Fair Trade Commission (JFTC) is charged with enforcing the law's provisions. However, in practice, antitrust policy has been less stringent than in the United States.

During the 1950s, after the Occupation ended, the Antimonopoly Law underwent a series of revisions that generally weakened it. Special recession cartels and rationalization cartels became legal (subject to case-by-case approval by the JFTC), rules on interlocking directorates were weakened and the limits on bank holdings of corporate stock were raised. Neither of the two categories of cartels permitted under this change have been used extensively, as indicated in Table 15. At the peak of activity in 1966, 30 recession and rationalization cartels were in effect. Since then the number has declined dramati-

1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
2	2	16	1	0	0	0	0	9	2	0	2	1	1	6	4	1	1	3
14	14	14	13	13	12	10	13	10	10	9	0	0	0	1	0	1	1	0
202	210	214	210	216	221	218	195	177	181	138	109	98	86	75	74	70	66	62
—	—	—	—	—	—	—	—	0	13	15	17	16	15	9	—	—	—	—
588	587	652	634	582	522	469	439	604	607	591	511	395	279	290	274	267	268	290
9	12	12	12	12	10	7	7	7	4	4	0	0	0	0	0	0	0	0
106	122	123	123	123	123	123	123	123	123	122	122	122	122	122	122	122	122	122
11	12	11	8	8	8	8	8	8	7	7	8	8	8	8	8	7	7	7
15	14	16	21	22	22	22	21	19	14	7	4	4	5	5	5	5	5	6
3	3	3	3	3	3	3	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	8	8	4
20	23	18	15	24	33	26	39	19	18	15	15	10	12	18	14	10	11	15
970	999	1,079	1,040	1,003	954	886	845	976	979	908	788	654	528	534	506	491	489	505

cally, and since 1975 the rationalization cartel format has been largely unused and the recession cartel used less frequently (one to six cartels in existence at the end of each fiscal year).

Beginning in the latter half of the 1960s, there was a resurgence in JFTC activity. With the rising public criticism of industry in the early 1970s, the Antimonopoly Law was also strengthened in 1977. At the present time there is some consideration of reversing direction again, but as yet it is impossible to tell if this will come to pass. Anyone considering the role of antitrust in Japan should be aware that the JFTC does investigate and prosecute companies for antitrust violations, including the recently raised possibility of import-distorting secret cartels. Antitrust in general may be less stringent than in the United States, but the JFTC does carry out its role.

Other Legal Cartels. As a means to circumvent the restrictions of the Antimonopoly Law, MITI sponsored a number of special industry laws beginning in the late 1950s, some of which contained specific antitrust exemptions and permitted various kinds of cooperative industry behavior. While many of these laws had sunset provisions and have gone out of existence, some are still in effect or have been replaced by new laws.

Table 15 shows the proliferation of cartels authorized under these various industry laws. From 53 in 1953, the number of cartels mushroomed to 1,049 in 1966. But since that time the number has dropped rather steadily, reaching 502 in 1982. Many of these are concentrated in areas of little or no discernible relevance to industrial policy goals.

Since industry is unlikely to be any more reticent about asking government to allow it to form cartels under these laws, the drop in the number of authorized cartels suggests a different attitude in the ministries under whose jurisdiction the industries fall. Numbers can be deceiving, however, and the smaller number of cartels that now exist could have more members or cover a greater amount of industrial output. Data on this is sparse, but the JFTC has measured the "cartelization ratio," which showed a considerable drop in the ratio of industry shipments of products covered by cartel arrangements to total industry shipments between 1963 and 1973.[59] It will soon update that statistic to 1983.

Joint Manufacturing—Other forms of cooperative action besides cartels have been approved in Japan as well. In the aircraft industry, for example, the government supervised the creation of companies owned jointly by the major industry participants, some with and some without government equity participation. The Nihon Aeroplane Manufacturing Company (1959), the Civil Transport Development Corporation (1973), and the Japanese Aeroengine Corporation (1981) have been the main vehicles of coordinating industry action. However, by focusing the attention of the entire industry on a single design to be produced by these joint companies, policy seems to have suffered from serious problems. The YS-11, the product of the NAMC, for example, was not a commercial success.

JECC—Another form of cooperation is represented by the computer and robot leasing companies. The Japan Electronic Computer Company is a leasing company owned jointly by the major Japanese computer manufacturers (except IBM Japan, which was deliberately excluded when the organization was established in 1961). This is a pure leasing company; manufacturers market their own computers, and then arrange transfer of title to the JECC with a lease to the user. In this way, the JECC did not interfere with the competition among the manufacturers, but saw to it that they all had access to the same financing terms in order to better compete with IBM. The advantage was provided through access to loans from JDB to provide the financing. The arrangement did not eliminate all risk for the manufacturers, as they were still obliged to buy back obsolete machines replaced before they were fully depreciated—which led to a tax break allowed for this purpose (discussed under tax policy).

The JECC was clearly an important part of the development of the Japanese computer industry, but that importance has declined over time. Table 16 demonstrates that the proportion of Japanese computers leased through the JECC has been declining. In the early years, the JECC accounted for approximately 30-50 percent of domestic sales, which should roughly correspond to the share of the (non-IBM) Japanese manufacturers. This percentage declined to a 14-16 percent range by the end of the 1970s, even though the Japanese companies occupied a considerably larger share of the total market than they had in the 1960s.

JAROL—The Japan Robot Leasing Company (JAROL), similar in function to the JECC, is another joint venture

Table 16: Role of the JECC in Financing Computers

Year	Total Production in Japan	Exports	JECC Purchases	JECC Share in Japanese sales
1961	¥ 5	¥ 0	¥ 1	23.4%
1962	9	0	3	34.4
1963	19	0	6	31.6
1964	25	1	12	47.2
1965	38	1	21	57.3
1966	66	3	21	33.1
1967	106	5	37	36.3
1968	164	4	67	41.8
1969	196	7	82	43.7
1970	310	6	92	30.2
1971	346	9	87	25.9
1972	421	12	89	21.7
1973	472	16	108	23.7
1974	589	24	124	21.9
1975	541	32	126	24.8
1976	619	60	134	24.0
1977	719	67	134	20.6
1978	910	105	131	16.2
1979	1,124	129	144	14.5
1980	1,293	168	178	15.8
1981	1,468	266	184	15.3

Source: Japan Electronic Computer Corp., *Konputa Noto* (Computer Notes), 1983; and Japan Computer Usage Development Institute, *Computer White Paper*.

[59] Japan Economic Institute, "Current Antitrust Policy in Japan," *JEI Report*, No. 12A, April 1, 1983.

firm involving equity participation by some 24 robot manufacturers, 10 insurance companies and 7 general leasing companies. However, it is not as broadly based because it is limited to financing leases for medium and small companies. JAROL is currently involved in approximately one-third of all robot leases in Japan.

The reason for this lower profile may be two fold; first, robot makers do not face a dominant IBM, as did the computer makers; and second, the government is less disposed to allow such extensive cooperation. When the JECC was established, the commercial leasing industry in Japan was not well developed. Now that it is, it provides strong competition for JAROL, to the extent that JAROL had an operating loss in FY 1982 of ¥172 million ($733,000) and a cumulative deficit since its start in 1980 of ¥301 million ($1.28 million).[60]

Structurally Depressed Industry Law — A new development in policy came in 1978 with the passage of the Structurally Depressed Industry Law. The law, which has recently been renewed and altered, originally provided a variety of measures of which the principle one was coordinated cutbacks in production capacity. In addition there were low-cost loans to fund the cutbacks and permission for legal cartels. Eventually 14 industries cut back production capacity under the law, although not all of them used the financial assistance or cartel provisions. That law was revised and extended in June 1983, with eight industries (most of which had been covered under the first law) to engage in further capacity cuts. Japanese government officials see these policies as fitting in the framework of Positive Adjustment Policy (PAP) put forth by the OECD.

The existence of these laws has become the basis for some American comments about the ability of the Japanese to phase out declining industries, but that praise has had some element of exaggeration. The JFTC, for example, criticized the proposal for renewing the law when it was first discussed in the fall of 1982. The JFTC argued in its own study that the adjustments which occurred in declining industries were the result of market pressure and not the coordinated plans worked out with MITI or other ministries. Buttressing this conclusion was the fact that capacity reduction in some industries preceded the achievement of concensus decisions and the reductions were often larger than those worked out with the government.

Other economists have criticized the system as a way to permit inefficient producers to survive despite market forces because of the concepts of equity, fairness, sharing and compromise that are inherent in government intermediation. A market-imposed reduction in capacity ought to take out the least efficient production units, but by at least partially circumventing the market, the government-supervised cooperative reduction implies that inefficient units of production remain in production.

Any cartel-like activity as an effort to reduce industry capacity is also something of a contradiction. As Professor Gary Saxonhouse comments: "The setting up or continuation of a cartel by itself seems a strange way to deal with long-term structural problems. The successful cartel is designed to raise product prices by restricting competition among firms in an industry. Given the presence of secular supply-demand gaps in structurally depressed industries, such a policy would retard rather than encourage the removal of excess capacity."[61] This raises the question of whether the reduction was really smoother and more efficient with government involvement than it would have been without it, although the Japanese government believes that there are other economic and social goals besides production efficiency that ought to be considered in evaluating the results.

Despite the economic criticisms of the depressed industry policy, it can be judged beneficially in at least one respect. For the government to discuss openly that some industries faced secular decline in demand, and to attach a structurally depressed label to them, was a brave step. This identification also gave the government a platform from which to resist industry demands for protection. While there is no guarantee that protection will not become a part of the policies taken for these industries, at least the government can say that increases in protection are not consistent with its goals of phasing out domestic production in favor of imports. This is in contrast to the United States, where the likely long-run decline of an industry due to trends in international competitiveness is not something that figures very openly in discussion of import policy.

Administrative Guidance — A final form of coordinated action in Japan falls under the looser rubric of administrative guidance from the government, without the formal structure of a cartel. Americans see administrative guidance as a pervasive tool based only on vague government powers that lead to cooperative behavior by Japanese companies, resulting in an increased international competitive advantage. While administrative guidance is an important feature of the way in which the Japanese government interacts with industry and tries to implement its policies, the American view of its power is sometimes exaggerated.

More often than most observers realize, administrative guidance is based on specific legislation. The procedures may be informal and not clearly spelled out, but the authority is more often than not very clear. Much of this is the result of the Japanese preference for informal interaction; a law may specify a formal procedure while the ministry in charge will carry out the same policy through administrative guidance without causing that embarrassment of formal confrontation or will achieve industry concensus through guidance prior to convening the legally required meetings or procedures.

Another important feature of administrative guidance during the 1950s and early 1960 is that it was supported by the very strong tools of MITI's authority over the allocation of foreign exchange (and as part of that its control over all agreements for the importation of foreign technology). This tool gave MITI an implicit threat against firms that balked at administrative guidance. Neither of these tools has been available to MITI for the past 15 years, and the ability to achieve industry acquiescence to administrative guidance has declined.

Even when MITI possessed its strong enforcement tools, administrative guidance did not always achieve the desired results. During the 1960s, MITI encouraged major industries to merge into a few large firms to better compete internationally and to avoid takeover by foreign firms as Japan complied with its obligations under the GATT and as a new member of the OECD to lower its trade and investment barriers.[62] As part of that drive, MITI wanted to reduce the number of firms in the auto industry, but was unable to do so. In fact, Honda began producing automobiles at that time, adding rather than subtracting from the number of producers. While this may be a case of the exception proving the rule, it remains instructive that MITI failed to possess the authority to enforce its decision in the face of industry opposition.

Justification and Evaluation — Why has the prohibition on collusive or coordinated interaction within industries been

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[60] Nihon Robotto Riisu Kabushi Kaisha (Japan Robot Leasing Company), *Eigyo Hokokusho* (Business Report), FY 1982, p. 4-9.

[61] Gary Saxonhouse, "Industrial Restructuring in Japan," *Journal of Japanese Studies*, Summer 1979, Vol. 5, No. 2, p. 306.

more loosely interpreted in Japan than in the United States? Some Japanese rely on cultural arguments, claiming that because the Japanese are inherently so competitive, the government must intervene to prevent "destructive" competition. A more reasonable possibility has been proposed recently by economist Kozo Yamamura, built around the special economic characteristics of high growth in the 1950s and 1960s. Behind this explanation lies the fact that Japan's growth was attributable to investment by private firms in new technologies, which generally implied larger scales of production. A number of firms in each industry were investing at the same time, resulting in periodic overcapacity. But since output in the whole economy was growing so rapidly, demand would soon catch up with supply. Therefore, what was needed was a temporary fixing of prices and/or output in such industries until demand increased. The rationale for this was to prevent bankruptcy of highly leveraged firms that faced short-term cash-flow problems but which had good long-term futures. The government therefore allowed collusive activity—through production and price cartels in some industries and coordination of investment decisions in some others. The periodic episodes of overcapacity also provide an explanation for the Japanese perception that they lived in an excessively competitive society.[62]

This model justifying periodic collusive activity is carefully described as applying only to the high-growth period when the average costs of production for firms were falling rapidly as new technologies were adopted. Under such conditions profit maximization goals are indistinguishable from market-share maximization goals. But these justifications for government-sanctioned collusive behavior came to an end; Japan is no longer characterized by high growth and rapidly falling average production costs. Yamamura goes on to criticize MITI for not changing its policies in response to the new era.[63]

Despite Yamamura's criticisms, government policy toward business collusion and coordination does seem to have changed, as evidenced by the data on the rapid and large drop in the number legal cartels and the 1977 strengthening of the Antimonopoly Law. However, as illustrated by the Structurally Depressed Industries Law, Japan still has a penchant for turning to non-market cooperative solutions in situations judged to be economically or socially disruptive or harsh. Controversy remains as to whether or not Japan derives any international advantage through its looser approach to cooperative business actions. If such action is not justified by economic factors, as Yamamura and Saxonhouse imply, then Japan may be doing more to hurt its position than strengthen it. However, the data are insufficient for any strong conclusion at this point.

Targeted Tax Favors

The pattern over time of the targeted tax benefits available follows the general pattern of the overall tax breaks discussed earlier under macroeconomic policy. Beginning in the 1950s, the tend-

Table 17: Special Depreciation Allowances

1964	1983
Increased initial depreciation:	Increased initial depreciation:
1. Plant and equipment in "important industries" specified in the Law for Promotion of Enterprise Improvement.	1. Improved machinery for pollution control, water supply equipment, recycling, energy saving, certain assets in basic materials industries, steel ocean-going vessels, commercial aircraft and jointly owned retail centers.
2. Large-scale plant and equipment produced for the first time in Japan involving a "high degree of technology."	2. Assets related to earthquake disaster prevention.
3. Water supply equipment for industrial use.	3. Forestation expenses.
4. Steel ocean-going vessels.	4. Facilities for designated associations (medium and small enterprises and traditional craft industries).
5. Plant and equipment for agricultural and fishery co-ops.	5. Equipment acquired by medium and small enterprises under government-mandated rationalization plans.
6. Equipment for medium and small scale enterprises.	6. Equipment purchased by medium and small enterprises and agricultural co-ops.
7. Machinery for research and development.	7. Equipment used by medical corporations.
8. Plant and equipment used in underdeveloped areas.	8. Plant and equipment in designated underdeveloped areas (farm villages, coal mining areas and Okinawa).
9. Machinery recognized as necessary to commercialize new technologies.	9. Mining shafts and lifts.
10. Mining shafts and lifts.	10. Expenditures made to R&D associations.
11. Expenses paid to R&D associations.	Accelerated depreciation:
Accelerated depreciation:	1. Machinery for industrial and commercial cooperatives involved in medium and small enterprise rationalization or textile industry adjustment.
1. Plant and equipment of medium and small enterprises.	2. Plant and equipment at firms employing 25 percent handicapped persons.
2. Assets relating to income derived from overseas activities.	3. Rental housing and buildings related to the Law on Redevelopment of Metropolitan Areas.
3. Rental housing.	4. Storage facilities for LPG.
4. Equipment for natural resource exploration.	5. Fireproof warehouses and silos.
5. Forestation expenses.	Other:
	1. Shorter depreciation lifetimes on hotels registered under the International Tourist Hotel Improvement Law.

Source: Ministry of Finance, *An Outline of Japanese Taxes*, 1964 and 1983 editions.

[62] Kozo Yamamura, "Success that Soured: Administrative Guidance and Cartels in Japan," in Kozo Yamamura, ed., *Policy and Trade Issues of the Japanese Economy* (Seattle: University of Washington Press, 1982), p. 80.

[63] Ibid., pp. 88-109.

ency was for an expansion of tax breaks, followed by a reduction in the 1970s. Targeted measures are mostly in the form of special, extra-fast depreciation write-offs granted to particular types of equipment.

Some of the new emerging industries that have benefited from extra-fast depreciation write-offs include robots, semiconductor production equipment, and computers. Table 17 shows the list of special depreciation allowances, comparing those of 1964 with those of 1983. While there is little change in the number of items eligible items listed, a noticeable shift has taken place. In 1964, a number of the types of eligible plant and equipment included categories specifically related to industrial development goals, including the plant and equipment of "important industries" as designated in the Law for Promotion of Enterprise Improvement. Such straightforward support for industrial development is largely absent by 1983. Now the list is dominated by social concerns (facilities employing handicapped persons) and support for small business and agriculture. Tax policy is no longer being used aggressively as a tool to promote industrial development. The Hudson Institute study of Japanese industrial policy released in 1983 basically agrees with this conclusion.[64]

Also, as the use of tax breaks proliferated in the late 1950s and 1960s, the industries included as eligible under the rather broad definitions in the tax code spread to a point that makes it difficult to say that the benefits were targeted. These depreciation tax breaks may have benefited industry as a whole, but eventually most industries managed to get themselves included on the list. Professors Peck and Tamura detail this proliferation of special tax measures in the 1950s and ascribe it to the process of accommodation and compromise in Japanese government decision-making.[65] Therefore, they conclude that these special tax measures of the high-growth era, with very few exceptions (they list steel and machinery as possibilities) were not an especially important stimulus for particular industries.

One measure of the importance of the special tax breaks is the estimated loss of potential government revenue. The Ministry of Finance (MOF) calculates that this loss has fallen from a high of 9 percent of total revenue in 1972 to only 1.9 percent in 1981. The reason for this drop is the MOF's increasing reluctance to allow special tax breaks in an era when it is trying to reduce government deficits in the face of opposition to general increases in taxes. By eliminating eligibility for tax breaks, it can increase revenue without increasing overall tax rates.

Combining the small size of present special tax benefits with the diffuse goals represented by the depreciation measures listed in Table 17, the evidence does not support the idea that the tax system in Japan is presently used extensively for industrial policy goals. Added to the conclusion reached earlier that overall corporate tax burdens in Japan are higher than in the United States, the tax system at the present time is definitely not providing more stimulus for industrial development than in the United States.

Aid for Export Development

During the early postwar period the yen was overvalued at the level established under the Bretton Woods system (¥360=$1), causing Japan to face recurring balance-of-payments problems. Not wishing to undergo the international embarrassment of devaluing the currency, the government pursued other options, including the use of monetary policy to periodically slow the economy, the import protection discussed earlier, and implementation of measures to encourage exports. At one time a number of measures were available to benefit exporters.

Going back to 1964, a representative year in the heyday of export promotion, the Japanese tax code provided several different benefits related to exports, some of which have already been mentioned elsewhere. First, a tax-free reserve was allowed for overseas market development costs which allowed a postponement of taxes. Second, a similar type of provision was aimed specifically at medium/small firms. Third, a tax-free reserve was allowed for overseas investment losses. Fourth, a deduction from taxable income was allowed for income from overseas technical services. Fifth, the special depreciation breaks discussed above included a provision for extra depreciation on certain depreciable assets related to income derived from overseas activities.

Besides these tax measures, the government created the Japan External Trade Organization (JETRO), which originally served to promote Japanese exports. A subsidiary of MITI, JETRO was created in 1958 and provided a variety of overseas market information and assistance on the technical details of exporting.

In addition to JETRO, the government created the Export-Import Bank in 1950 to provide low-cost loans for financing trade. Other measures included the antitrust exemption for export associations of small companies under the Medium and Small Company Law and the preferential treatment given to export credit bills at the discount window of the Bank of Japan during the 1960s.

Virtually all of these measures have been dismantled or changed in function since the 1960s. All of the tax incentives for exports have been gone for a decade, with the exception of the overseas market development reserve allowed to small companies and the overseas investment loss reserve. The preferential discount rates at the Bank of Japan have been gone for over a decade. JETRO's functions were shifted from exports to include both exports and imports. The Eximbank loans have also shifted toward a more balanced emphasis on imports as well as exports.

Illustrating these changing functions are the budgets of JETRO and the loan portfolio of the Eximbank. Export promotion remained the principal budget line item for JETRO until the late 1960s, as shown in Table 18. Between FY 1969 and FY 1983, export promotion activities dropped from 45.5 percent of JETRO's budget to only 8.2 percent, while import-related activities rose from a miniscule 0.5 percent to 16.3 percent.

The Eximbank loans supporting ex-

Table 18: Budget of the Japan External Trade Organization (JETRO)

Activity	1969	1974	1980	1983
Export Promotion	45.5%	25.5%	14.4%	8.2%
Import Promotion	0.5	4.2	15.9	16.3
Technology and Equipment Assistance	0.0	3.0	2.6	6.9
Avoidance of Trade Friction	5.1	9.8	8.3	8.4
Promotion of International Understanding	27.6	23.5	23.3	16.6
Promotion of Trade with Developing Countries	0.8	6.3	10.5	25.1
Other	20.6	27.8	24.6	18.5

Source: Japan External Trade Organization.

[64] Wheeler, Janow, and Pepper, pp. 93-95.

[65] Peck and Tamura, "Technology," in Patrick and Rosovsky, eds., *Asia's New Giant*, p. 353.

Table 19: Export-Import Bank Lending

Year	Export-Related Lending		Import-Related Lending	
	Amount	Composition	Amount	Composition
1973	¥ 3,520	47%	¥2,548	34%
1974	6,146	61	2,770	27
1975	7,114	74	1,499	16
1976	10,274	82	1,313	10
1977	7,493	83	1,552	11
1978	4,648	40	6,187	50
1979	4,009	48	3,325	40
1980	7,016	76	782	8
1981	11,387	70	2,943	18
1982	7,592	59	3,630	28

Source: Export-Import Bank of Japan.

ports and imports vary considerably by year, as indicated in Table 19. However, for the period FY 1978-1983, export related lending was 58.6 percent of loans, compared to 69.4 percent in the preceding 5-year period.

The implication of all these changes in focus of trade-related government institutions and the demise of tax breaks for exporting is that export aid is no longer a significant part of Japanese government industrial policy tools. The information provided later demonstrates that the United States does more to promote exports than does Japan.

Evaluation of Japan's Industrial Policy as a Whole

While any single policy measure may have a rather small impact on an industry, it is possible that, when considered as a whole, a package of policies aimed at a particular industry could potentially make a difference in its development and international competitiveness. This has been the basis for industry groups in the United States to recommend changes in U.S. legislation to make foreign targeting grounds for protection from imports. Existing laws do not get at the package of foreign actions, only at single ones. Because of these assertions, this section considers the collective impact of the various policy measures detailed individually above.

There are several levels at which these policy measures could have an impact on economic growth: the economy as a whole (faster or slower growth), individual sectors (manufacturing, services, finance, agriculture, etc.) or individual industries and firms. That is, is the question one of explaining why Japan grew rapidly in the 1950s and 1960s or of explaining why particular industries are successful? These two questions, though related, are not necessarily the same. American industry has been concerned with the second question, looking for the reasons they face strong competition from Japanese firms. However, in the broad view of industrial policy taken in this study, much of the success of individual firms may have more to do with policies that led to an overall high economic growth rate, rather than microeconomic policies helping a particular industry.

Several fundamental points emerge immediately in looking at these policies together. First, the goals, tools and overall importance of industrial policy have undergone tremendous change over time. This has led some analysts to divide the postwar era into separate periods. Ichimura and Adams, for example, divide industrial policy into four phases: occupation (1945-1952), reconstruction (1952-1960), rapid growth (1960-1970) and the trial period (1970-1980).[66] This study will not talk of explicit periods, but will explore the special circumstances surrounding industrial policy in the 1950s and 1960s and how those circumstances changed in the 1970s. In simple terms, many of the strong tools for carrying out industrial policy goals in the 1950s are gone; today the Japanese government has far fewer means to carry out its policy goals.

Chalmers Johnson, in his study of MITI, describes a decline of power in the late 1960s-early 1970s followed by a resurgence in the late 1970s. The Hudson Institute study of industrial policy sees a more continual decline in the importances of MITI and of industrial policy as a whole. How can these two views be reconciled? Chalmers Johnson's view is based more on his observation of MITI's self-perceptions. MITI was the focus of severe public criticism at the beginning of the 1970s, but the public climate had become much more favorable by the 1980s. However, less public criticism of MITI does not mean that the importance of its policies to the economy have rebounded as well. The proposition that its overall power and influence has continued to decline even as public opinion became more favorable seems to fit the facts better: the economy is now larger and more complex, MITI's enforcement tools are fewer, financial support for R&D is modest, other forms of financial support are minor, and to some extent the concept of administrative guidance has been challenged by the courts.

Anyone looking at Japanese industrial policy must also be aware that Japanese policies have social motivations as well as industry-promoting ones. Because of this, the definition of success or failure is not simple, since a policy that did not benefit the economy may have served some desired social goal. Japan is no more a single-minded economic machine than is the United States. Government policy is always the result of an internal political and bureaucratic struggle over economic and social priorities and concerns. Because of these other social and political motivations, some of the industries that have been the heaviest targets of government interest have not been economic successes, a fact recognized even by MITI officials. For example, Naohiro Amaya, recent vice minister of MITI, in an interview for this project, identified coal as an industry where policy was too heavy and unsuccessful in promoting efficiency or growth. Part of the explanation lies in the regional social dislocations posed by the decline of the industry and the desire to mitigate those problems.

Another major feature of industrial policy in Japan that has been alluded to earlier is the general lack of discussion about the distinction of substituting vs. supplementing the private sector. When looking at the United States, one finds frequent concerns over whether government policy will truly provide a supplement or addition to what the private sector would have done in the absence of government assistance. This is an important consideration in evaluating the impact of policy, but, relative to the United States, there seems to be little discussion of this point in Japan. For example, what would have been the result for the semiconductor industry in Japan in the absence of the VLSI project? This can be argued either way by

[66] Adams and Ichimura, "Industrial Policy in Japan," in Gerard Adams and Lawrence Klein, eds., *Industrial Policies for Growth and Competitiveness* (Lexington, MA: Heath and Company, 1983, p. 308.

proponents and opponents of protectionism in the United States because of disagreement over how much R&D the industry would have undertaken in the absence of that project.

With these considerations and problems in mind, the following sections consider the likely impact of policy, past and present, on the growth and success of the economy as a whole and on particular industries.

Economy as a Whole

Did industrial policy mean that Japan grew faster than otherwise would have been the case? This is a very difficult question to answer because there are so many variables involved, and because so much of industrial policy is non-quantifiable. At the very least, though, industrial policy was hardly the only factor involved in producing high rates of economic growth. These other factors involved in growth cannot be ignored; they are the dominant cause of growth. Japan was in a situation of technological backwardness; world prices for raw materials were low as Japan began to shift to heavy reliance on imported raw materials; the industrial countries were willing to tolerate the heavy restrictions on merchandise imports and capital inflow until the 1960s (partly out of lack of interest in Japan); the public was willing to postpone desires for more comfortable surroundings for the goal of growth; labor reacted favorably to rapid technological change and in general labor-management relations proceeded smoothly. In short, the growth of the Japanese economy was generated by vigorous investment by the private sector, motivated by high rates of return resulting from a variety of economic and social factors, of which industrial policy was only one of many. These other factors will be explored in greater detail below because they formed a unique environment for industrial policy in that era.

Even if one were to conclude that industrial targeting was not an important factor in Japanese development, though, other government actions clearly were very important. The fact that the government provided the necessary physical infrastructure in areas such as roads, railroads and harbors to support economic expansion, plus a workable legal framework and a stable (non-coercive) political environment, was of enormous importance for economic development. The difficulties faced by China in its attempt to industrialize illustrate very graphically that one should not minimize the importance of supplying this type of support for the economy.

Besides these very basic policies on supplying political and physical infrastructure, it is likely that the macroeconomic policies of the government were relatively more important than industrial "targeting". By holding down the cost of capital and encouraging savings, the government helped create a favorable environment for investment. Keeping the share of the government in total economic activity low at a time when the demand for investment was high freed more resources to flow into private investment. Another way in which macroeconomic policies may have made a difference was by shifting resources toward those sectors of the economy most important for generating rapid growth—a point discussed below.

At the microeconomic level, the first striking observation is that Japan has an industrial structure not far different from other countries. A government policy of favoring certain industries over others would have been more likely to create a structure different from other countries. Therefore, in order to demonstrate that industry-targeted policy made a difference, it would be necessary to show that these policies helped to shift resources among industries in such a way as to bring about this structure, and that without the push of policy that shift would have not occurred. One finds, for example, the statements of MITI officials that without government, Japan would have found itself caught in a low-income trap, exporting low value products like textiles and dependent on foreign countries for sophisticated manufactured goods.

But if one is to evaluate the total effect microeconomic policies had on generating faster growth, then the successes must be weighed against the failures. That is, while support for the steel industry may have aided growth, support for agriculture and coal may have slowed growth. Support for these areas was motivated in part for social and political reasons and policy may not have been a failure in those senses; but as economic policy, they may have retarded the shift of resources to higher-value-added industries.

Another feature of macroeconomic policy that may have had a beneficial impact on economic growth in general and on manufacturing industries in particular was the shift of resources toward private business investment. One important measure of this shift is the division of GNP between capital and labor. Statistics show a drop in labor's share of GNP from the 1950s to the 1960s. Ohkawa and Rosovsky show a drop in labor's share from 78.6 percent in 1952 to 67 percent in 1962.[67] On a slightly different basis, Denison and Chung show labor's share declining from 79.1 percent of national income in 1952 to 71.5 percent in 1961 and then staying in a 72-76 percent range through 1971.[68] This means that over time resources were shifting from consumers to corporations, an important development since investment by the corporate sector was the mainspring of growth. This decline in the share of labor was primarily the result of the large, flexible supplies of labor which caused wages to lag behind productivity increases until the late 1960s. But to the extent that the government followed policies that encouraged or at least did not inhibit this development, policy did play a supportive role in this shift of income shares.

Other international comparisons show that the sectoral structure of Japan remains somewhat more heavily concentrated in manufacturing than in services than is the case elsewhere.[69] This could have aided overall growth rates along the lines of the "turnpike" theorem. The basic concept of this idea is that the most efficient growth path for an economy may not be a straight line projection of the basket of goods and services being produced at the starting point. Japan may have been better off ignoring pollution and social infrastructure in order to shift resources to industrial investment goods, and then shift back toward a more balanced basket of goods and services later when higher income levels had been achieved.[70] This growth pattern involved a shift of resources away from consumers, social infrastructure and environmental protection that may have made economic sense and was consistent with public desires in the 1950s, but no longer.

Impact at the Industry Level

Did industrial policy effectively move resources to certain industries in a way that would not have occurred otherwise? This is a critical question, according to some American industry representatives concerned with Japanese competition. There are two sides to this argument. Former officials of MITI, in-

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[67] Kazushi Ohkawa and Henry Rosovsky, *Japanese Economic Growth: Trend Acceleration in the Twentieth Century* (Stanford: Stanford University Press, 1973), pp. 253-271.

[68] Denison and Chung, "Economic Growth and Its Sources," in Patrick and Rosovsky, eds., *Asia's New Giant*, p. 87.

[69] Japan Economic Institute, "The Service Sector of Japan's Economy," *JEI Report*, No. 45A, November 19, 1982.

[70] Murakami, Tokoyama and Tsukui, "Efficient Paths of Accumulation and the Turnpike of the Japanese Economy," A.P. Carter and A. Brody, eds., *Application of Input-Output Analysis* (New York: North-Holland Publishing Co., 1969).

cluding Mr. Sahashi and Naohiro Amaya have written that in the 1950s, the "heavy and chemical" industries would not have developed on their own; Japan would have been stuck in the low income trap with labor-intensive industries. On the other hand, if policy were successful, then an industry structure should have emerged that was different from what market forces have produced elsewhere. But Japan's industrial structure is not remarkably different from the West when adjustment is made for factors such as resource endowment and distance from foreign trading partners. Professor Gary Saxonhouse stated in his testimony to the International Trade Commission in the summer of 1983: "If Japanese experience is properly normalized for Japan's capital stock, labor force, geographic position and materials resource endowment, there is little left to be explained by an industrial policy which is more than a substitute for market processes, or for that matter by trade barriers."[71]

Even if the Saxonhouse statement is accepted at face value, are there particular industries in Japan that owe their existence or international competitiveness to the existence of industrial policy in Japan? To consider this question, the examples of computers, aircraft and robotics are considered briefly here, bringing together the various policies related to each that were discussed earlier. This list is highly selective, and studies of other industries are readily available in other publications, including the recent International Trade Commission study of Japanese industrial policy. These are three industries considered by Americans to be "targets" in Japanese industrial policy; if government actions have had a strong impact, then those effects ought to show up in these cases.

Computers—Since about 1960 the computer industry in Japan has been "targeted" and a variety of supportive measures have been taken by the government. This decision was motivated by very strong nationalistic attitudes at that time directed against IBM, which was seen as a threat to Japan's ability to develop its own computer industry and as a symbol of foreign domination of advanced technology. Chalmers Johnson describes the attitude of the principle architect of MITI policy toward the computer industry—Shigeru Sahashi—as having a "vigorous industrial xenophobia."[72] Since the process of Japanese growth was one of import substitution, this kind of national pride or xenophobia was an important part of the attitudes of the time. Computers, though, have received heavier and more consistent assistance than any other high-technology industry.

Japan's computer industry began its development when protectionism was still strong. Tariffs on computers and various computer parts ranged from 15 to 25 percent in 1965, for example, but the real constraint was that computers were under quota. However, those quotas came to an end and tariffs gradually fell. In the Tokyo Round GATT agreement now being implemented, rates will drop to 4.9 percent on central processing units and 6.0 percent on peripherals. The quotas were removed in several steps during the 1972-1975 period.

Inward investment also was restricted as part of the general investment limitations of the 1950s, but IBM still managed to enter with a wholly owned sales and manufacturing subsidiary by agreeing to license its technology to the fledgling domestic computer industry. The investment restrictions in computers were lifted in several steps over the 1974-1976 period.

In addition, commercial policy included in the past a buy-domestic policy for government agencies (formally rescinded in 1978), and informal encouragement of private industry to buy domestic. In total, the picture is of an industry that was heavily protected from foreign competition in the domestic market until the 1970s. However, unlike automobiles or some other industries, the overwhelming need for industry to use computers while the domestic industry was lagging in computer technology prevented the government from fully excluding foreign products.

Computer companies also received government loans. Japan Development Bank extended ¥50.9 billion ($216 million) in new loans to the computer industry in FY 1982, virtually all of which consisted of loans to the Japan Electronic Computer Corporation, discussed below. Looking at a slightly earlier period, a recent study by the U.S. General Accounting Office (GAO) estimated Japanese government financial support totaled ¥68.6 billion ($286 million) over the 1972-1976 period for production of computers to compete with the IBM model 370. The GAO study also estimated that ¥78.2 billion ($326 million) in R&D subsidies went to the computer industry over the 1976-1982 period.[73] The Hudson Institute study also estimated R&D support, but at a higher ¥92.8 billion ($386 million) over the 1976-1981 period.[74]

Support for research and development also included joint activity. Computers were marked by a series of specific R&D programs sponsored by the government. The Hudson Institute counted 16 from 1950 to 1981, but that total includes semiconductor projects as well as computers. These joint projects were all in the form of the research associations discussed earlier.

Other forms of cooperative action included the formation of the Japan Electron Computer Corporation (JECC), established in 1961 to provide lease financing. It had no government equity participation, but was encouraged by the government and had heavy loan support from the JDB. Specifically aimed at IBM Japan (which was excluded from participation) the JECC was designed to strengthen Japanese companies' ability to compete with IBM in its principle method of marketing at a time when leasing was a rather undeveloped industry in Japan. The data on the share of computers in Japan leased through JECC are not precise, but the data in Table 16 (discussed earlier) suggest that JECC handled virtually all non-IBM computers in the early years. However, that role has since steadily diminished.

Another form of cooperative action came through MITI guidance in 1971, realigning the six major firms into three groups of two firms each for the purpose of developing the next generation of computers (to compete with the IBM 370). However, the evidence is that there was little cooperation between the pairings of companies, so that MITI did not achieve as much consolidation as it desired. Nevertheless, by cutting the range of different directions taken in developing competition for IBM, MITI may have furthered the chances of success by increasing the resources devoted to each approach.

Tax relief was the final measure of government policy on computers. When the JECC was established, the manufacturers had to agree to repurchase all computers returned before fully depreciated because of introduction and sale of newer models. Because of the financial burden imposed by this repurchase requirement, the government allowed tax-free reserves to cover these losses. Also, since 1979 the tax law allowed a tax free reserve for software companies against losses associated with the failure of software to perform properly.

How can this package of policies toward computers be evaluated? With-

[71] Saxonhouse, "Tampering," p. 33.

[72] Chalmers Johnson, p. 247.

[73] United States General Accounting Office, *Industrial Policy: Case Studies in the Japanese Experience* (GAO/ID-83-11, October 20, 1982), p. 14.

[74] Wheeler, Janow, and Pepper, p. 153.

out the tariffs, quotas, investment restrictions, and requirement to license technology, IBM might have been able to establish a stronger position in Japan, delaying or preventing the development of an independent domestic industry. It is significant that Japan remains the only major industrial country to mount a major challenge to IBM dominance. All other measures beyond protectionism are more difficult to evaluate. Because of the inferiority of Japanese computers in the early years of the industry, the price advantage available through JECC financing may have been important in making sales to reluctant Japanese buyers, but more evidence would be necessary to demonstrate that hypothesis convincingly. The other measures—tax breaks and R&D support—were convenient for the industry (although the tax-free reserve applied equally to IBM Japan) but hardly decisive; the loans made to the industry are not impressively large when seen in an international context.

Aircraft—With the prewar military aircraft industry dismantled and prohibited during the occupation period, Japan entered its high growth era with no domestic aircraft industry and a desire to build one. This industry, too, became the recipient of a variety of supportive government measures. But unlike computers, it has never developed as rapidly or strongly as the government originally hoped.

Import policy was aimed at military aircraft, which are purchased abroad but assembled in Japan under agreement with the U.S. government. This policy was not entirely of Japanese origin, since the United States wanted the Japanese to have repair capability on military aircraft as part of the coordination of defense policy. However, it was also hoped that assembly in Japan would provide experience to domestic companies with aircraft, leading them to move into their own production of commercial aircraft. This did not happen. Unlike computers, the complete lack of a domestic industry coupled with the need for commercial air transportation has prevented the erection of any import barriers for commercial aircraft. The one commercial aircraft produced in Japan in the postwar period (the YS-11, discussed below) was the subject of a buy-domestic program, but production remained small enough that there was no threat to foreign aircraft producers.

Financial support or subsidy to the industry came mainly in the form of success contingent loans to the Civil Transport Development Corporation (CTDC) and equity participation in the Nippon Aeroplane Manufacturing Company (NAMCO), two joint venture companies described below. The support for CTDC has been rather heavy, with the government supplying about one-half of total development costs.

R&D support has also been provided to the aircraft industry, but this is not easy to differentiate from the general financial assistance just described, because the attempt to produce aircraft was essentially a research and development process. However, the government has separately funded 100 percent of an engine research project beginning in 1971 through an industry research association (the Engineering Research Association for Aerojet Engines). At the present time, MITI is also funding another research association (the Society of Japanese Aerospace Companies, Inc.) at a 40-45 percent level for research on a variety of aerospace technologies.

Government encouragement of cooperative activity has come through three companies organized with equity ownership divided among the principle manufacturers and sometimes the government. These three are Nippon Aerocraft Manufacturing Company (NAMCO), the Civil Transport Development Corp. (CTDC) and Aeroengine Corp. NAMCO built the YS-11, a small commercial passenger plane, and had 50 percent government equity participation. CTDC, a similar company without government equity participation, was established in 1973 to produce a medium-size passenger jet (labeled the YX) that eventually was scaled back to participation in the Boeing 767 development. The Aeroengine Corporation is now coordinating the Japanese participation with Rolls Royce in a new jet engine development project.

As is evident from this listing, the Japanese government used many policy measures to encourage the development of an indigenous aircraft industry. Despite the support, no significant aircraft industry has been developed. Only one commercial transport has been produced (the YS-11) and that was not a success. Some Japanese companies now produce corporate jets, but so do companies in several other countries that are not in the large commercial aircraft market, suggesting that entry to this segment of the market is not as difficult or dependent on government assistance. The desire to produce a Japanese commercial aircraft has now been scaled back to encouraging Japanese participation in international consortia. This remains the basic approach as the government has begun considering the next generation of plane (dubbed the YXX) and policy after the Boeing 767, but no further developments have yet taken place.

Why has government policy resulted in so little success in this case? One reason may be that the need for commercial aircraft by Japanese airlines precluded the use of import barriers; it could not postpone aircraft purchases until such time as the domestic industry could supply it with aircraft. Also, the size of the Japanese market was so small that import barriers would not have resulted in a protected market large enough to encourage development.

What applies to commercial aircraft also applies to military aircraft. The requirements on licensed production of military aircraft was an insufficient incentive because the military market has never been a viable one in which to strike out with an independent product. This is due to the ban on exporting military equipment, coupled with the small size of Japan's own defense procurement.

Another factor working against success was the fact that all resources were put into single products—the YS-11, the YX and the YXX. Unwilling to commit large sums of money to the industry, concentration on single products became unavoidable, but studies in other countries show this to be a very risky approach for government to take in promoting industry. This has not been characteristic of Japanese government policy toward other industries, where the aim has generally been to develop a small number of competing companies, products or technologies to foster competition at home.

The current goals of fostering Japanese participation in international consortia are a far cry from the early 1970s, when MITI predicted that aircraft would become one of the "industrial monuments" of the 1970s. The aircraft industry remains an instructive case of the government failing to reduce industry's perception of risk to a point where the industry was willing to enter the market; not every industry that the Japanese government decides to foster becomes a success.

Robotics—Industrial robots are newer than either computers or aircraft and illustrate some of the changes in industrial policy. The amount and variety of assistance measures that the government can offer to encourage the industry is considerably scaled back from computers or aircraft.

Import policy, for example, is not a factor for this industry. There are no significant tariff barriers, and no quotas. The Japanese government is in no position to create new barriers on imports or investment in this industry, given its

commitment over the past two decades to lower them. Buy-domestic policies are not relevant for this industry either because the government does not operate factories where robots might be used. Standards that might discriminate against imports have not arisen as an international issue.

Financial aid has been coupled with cooperative action through the Japan Robot Leasing Company, Ltd. (JAROL), discussed earlier, which was established in 1980 and partially modeled after the JECC. JAROL provides lease financing for medium/small companies acquiring robots, and it receives about 60 percent of its loanable funds from the Japan Development Bank.

Further financial assistance is available to medium/small businesses in the form of loans from the Small Business Finance Corporation and the People's Finance Corporation (both government-owned financial institutions) for the purchase of robots. The People's Finance Corporation extended loans in FY 1980 of ¥5.8 billion ($24 million) for labor safety investment, and the purchase of robots was included in this category. Robots are also eligible purchases in a central/local government program for the modernization of small factories.

Tax policy has also been used, through the inclusion of robots as eligible for extra-fast depreciation write-offs (under the first category listed in Table 17). However, according to MITI officials, the depreciation lifetime upon which the acceleration is based is actually longer than in the United States, so that the total effect may not be much different. Support for R&D is present, but the details are not clear, and this support is now under some pressure because of government budget cutting over the past few years.

Even the GAO had trouble trying to pin down how important these measures have been to the industry.[75] Note, for example, that JAROL's function is very much scaled down from the pervasive presence of JECC in computers in the early 1960s. But one cannot deny that policy has resulted in some benefit to the industry, mainly through encouraging small-business purchasers of robots rather than directly to the manufacturers of robots.

Other factors further cloud the question of promotion of the industry. Japan has faced rising labor costs and perceptions of future labor shortages, despite the current high unemployment (relative to past levels in Japan) and rather low wage settlements over past few years. These perceptions have led to great interest in labor-saving capital purchases. This interest may have been increased by the different labor union structure in Japan, in which enterprise unions and the lifetime employment guarantee to the unionized part of the workforce has reduced labor resistance to robots (at least until very recently).

Summary—No one can deny that Japanese industrial policy has been important to the development of some industries. However, few industries have received as much attention from the government as the three discussed above, and many successful industries and companies have never been the "target" of government policies in this way.

Computers seem to be a prime example of an industry that may actually owe some of its success to the existence of government policy; the trade and investment restrictions, the pressure on IBM to license technology, and the JECC and R&D support all contributed to Japan's ability to foster an indigenous computer industry that has a far greater share of its home market than is the case in other industrial countries. But even with computers, the target of government policy for more than 20 years now, one cannot deny that the industry itself was very aggressive, and that R&D subsidies were relatively modest.

With computers or other industries, the question remains of whether the whole package of support measures together is responsible for the success of particular industries, or whether only one or two items are important. In only a few cases are different policies truly tied together, as with the JECC coupled with the tax-free reserve for computer repurchase. For most industries, one policy—restriction of foreign competitors through tariffs, quotas and investment control—emerges as the decisive policy measure. For computers, protectionism was heavy, with tariffs, quotas, and investment restrictions all used in the 1960s and early 1970s, and the impact of protectionism on the industry dwarfs all other measures. Automobiles provide another example, where a protected home market encouraged companies to enter automobile production, and in fact resulted in more automobile companies than MITI desired. Americans have turned from a traditional focus on trade barriers to a whole range of industrial policy measures out of a belief that the package as a whole is necessary to demonstrate unfair foreign government support for industries, but that shift in focus does not appear to be well supported by the facts.

Even in cases where industrial policy measures have been clearly beneficial or important to the development of an industry, the impact of government policy often pales in comparison to other economic factors, including the macroeconomic policy environment, managerial skill, the size and rapid growth of demand, product design, quality control, etc. The large effect of commercial policy and these other economic factors imply that the relative importance of the remaining positive microeconomic forms of assistance provided to industry in the past are by no means the sole cause of success of particular industries, and in many cases are not even very important. For other industries, private sector people interviewed for this project resented the idea that anyone could think that their hard-won commercial success was the product of government policy.

A final point is that even in those cases where some form of positive government policy or assistance can be identified, it may be no more than a functional substitute for other mechanisms in the United States. That is, certain markets which operate smoothly in the United States without government participation do not function as smoothly or efficiently in Japan. Industrial policy to some extent represents an attempt to overcome those market problems or failures in Japan. This point is considered in greater detail in the section on the United States.

The Special Circumstances Surrounding the 1950s-1960s

Much of the description and analysis of Japanese industrial policies available in English focuses on the 1950s and the 1960s, and as demonstrated above, many of those policies are now gone or considerably diminished in scope. Whatever efficacy those policies had during the earlier part of the postwar period was intimately entwined with the special and highly unusual economic and social environment of that era. A brief review of that environment demonstrates how far current Japanese or American circumstances deviate from it, implying that policies that made sense in Japan at that time are not relevant to any discussion of future policy.

War Destruction

Japan began the postwar period suffering from intense war destruction, as did some European countries. A major portion of industrial plant and equipment was reduced to scrap metal by air raids and remaining equipment was often obsolete or in serious disrepair; railways suffered from similar destruction and disarray; the merchant marine was

[75] GAO, Industrial Policy, pp. 28-29.

largely gone; soldiers as well as emigrants to Korea, Manchuria and other possessions were flooding back into the country; and vast parts of the urban population had no housing. Under these circumstances the country faced potentially paralyzing bottlenecks and competing demands for resources that freely functioning markets could not handle well. Many of these early postwar bottlenecks were gone by the middle of the 1950s, but while they lasted they provided a very legitimate reason for heavy government intervention in the allocation of resources aimed at putting the economy back together.

Stable Political System

Japan has not had to suffer the consequences of serious political strife, either during the high growth era or now. The Liberal Democratic Party has maintained its parliamentary majority since the party's formation in 1955, although that majority is now much diminished. Even prior to that date, the socialist party was in power only once, and for less than one year. The importance of this is evident when compared to the economic problems created by political strife in South Korea, China, the Philippines and other countries in the area.

Shortage of Capital

High growth rates in the corporate sector that created a large need for external sources of funds for expansion, the restrictions on borrowing from abroad, and the control of interest rates at levels below market-clearing ones created a chronic shortage of capital during the high-growth period. This set the scene for capital rationing through government-owned financial institutions, through Bank of Japan discount window policy, and overall limits ("window guidance") on the quarterly increases in commercial bank lending. To the extent that the Japanese government tried to play a role in the allocation of loans, its ability to do so was enhanced by the existence of capital shortage.

Personal Sacrifice

Having faced tremendous destruction and the emotional strain of defeat in war, the Japanese public exhibited a remarkable concensus on the need to postpone personal desires or personal comfort for the sake of rebuilding the nation. People were willing to work long hours, forego entertainment, endure poor housing, a lack of sewers, as well as dangerously crowded trains and unsafe roads, all to bring faster economic growth. This sacrifice does not mean that the population was necessarily motivated by patriotic slogans or a willingness to sacrifice personal desires for the good of the nation. Rapid economic growth also held the promise of higher income and better living conditions for all citizens, so that people were making a choice to substitute future gains for current consumption and enjoyment. There was also a powerful ethos of what was proper or acceptable behavior given the severity of the times, just as there was in Europe or as was represented by the largely voluntary compliance with the 55 mile-per-hour speed limits in the United States during the oil shortage in the winter of 1973-1974. This ethos made possible increases in personal savings and the shift of these savings to fund investment in the corporate sector which was such an important ingredient in producing the high economic growth of the 1950s and 1960s.

Absence of Labor Strife

Japan has been relatively free of labor strife, losing fewer worker-days to strikes than other industrial countries. This was partly due to the ethos of hard work and sacrifice just described; in the early postwar period, workers were aware of the scarcity of good jobs and did not want to jeopardize their positions. But the relative smoothness of labor-management relations has outlasted the early years for a variety of complex reasons, including general social attitudes, specific management techniques, lack of craft-oriented unions and implicit job guarantees at larger companies.

Technological Lag

The starting point for any understanding of Japan's rapid growth rate is the fact that it lagged far behind Western technological levels at the beginning of the postwar era. Dramatic productivity gains were possible through importing and adapting foreign technology to Japanese uses, and this became the basis for achieving high growth rates. The technological lag also made the forecasting or planning function of the government much easier—it had only to look at the economic structure of the United States or certain European countries to see where the economy would be headed if it continued to grow and develop. The lag also became an important window for government intervention, through MITI's control over approval of all applications to import foreign technology.

Flexible Labor Supply

During the 1950s employment in manufacturing expanded very rapidly without driving up the real cost of labor. This increased the profitability of Japanese corporations, meaning that they gained by introducing new technologies that increased labor productivity, as indicated by the statistics showing the decline in the share of GNP going to labor during that period. This could be considered another form of sacrifice, allowing a transfer of income to the corporate sector where it was reinvested in increased output. Abundant labor and stable wages were the result of overall labor supply and demand conditions, but were further aided by the willingness of labor unions to be moderate in their wage demands in return for the implicit guarantees of lifetime employment, a strong seniority wage system and fringe benefits such as housing.

Favorable World Environment

At the time when Japanese needs began to outstrip the meager raw material supplies at home, world raw material prices were low and relatively stable. At the same time, protectionism facing Japanese exports was declining worldwide as a result of the industrial nations' commitment to fostering more liberal trade. These same countries were willing to tolerate Japan's many protectionist barriers for a while—partly out of an understanding of Japan's special problems of the time and partly because of Japan's insignificance to world trade in the 1950s.

Overvalued Exchange Rate

Japan was committed to a fixed exchange rate set in 1949 under the Bretton Woods system that was overvalued, causing Japan to experience chronic balance-of-payments problems. Rather than face the international humiliation of devaluation, Japan responded to this problem with its strong foreign exchange controls (including the severe limits on foreign investment in Japan and Japanese investment abroad), import quotas and high tariffs to discourage "non-essential" imports, plus a variety of tax and other incentives for exports. The periodic balance-of-payments problems also fed into the nationalistic attitude of desiring to replace imports with domestic products and moving up the value-added ladder in exports.

Changing Environment of the Late 1960s and 1970s

The environment outlined above provides both important factors for Japan's tremendous economic success in the earlier postwar period and some explanations for why government policies were justified or effective at that time. That environment began to change by the early 1960s, and by now it is radically different:

- The technology gap has been essen-

tially closed, implying that the dramatic productivity gains available from imported technology have come to an end.

- The relative cost of labor began to climb rapidly from the beginning of the 1960s, ending the tendency of the share of labor to fall and pushing labor-intensive industries into decline.
- The favorable market for raw material prices came to an end. Price spirals in a number of materials rocked Japan in the early 1970s, and the large leaps in the price of oil in 1973 and 1979 were especially damaging because of Japan's heavy reliance on imported Mideast oil in its total energy supply. This development also created uncompetitive industries.
- Growth spawned severe and dangerous pollution problems by the late 1960s which could be ignored no longer in the interest of generating faster GNP growth. This development necessitated a reallocation of economic resources away from growth goals and weakened public acceptance of MITI's industrial policies.
- The capital shortages of the 1950s gave way to capital surpluses in the 1970s. With slower economic growth, domestic savings tended to exceed what the private sector wanted to invest, and this situation effectively ended the efficacy of any government attempts to guide the allocation of bank loans.
- The yen ceased to be overvalued by the mid-1960s, and when floating rates began in 1973, its international value drifted upward. As this situation emerged, the rationale for foreign exchange controls, investment controls, import restraints, and export promotion came to an end.
- Personal sector attitudes changed as expected gains in income materialized and life was no longer so grim. With much higher incomes, people wanted to fulfill their postponed desire for a better living environment. This change implied a reallocation of resources in the economy.

As a result of these fundamental changes in the economic environment, many of the policies that were part of the government's industrial development strategy came to an end or were modified:

- MITI control over the allocation of foreign exchange came to an end in the early 1960s.
- MITI control over approval of all technology import agreements came to an end in a series of steps beginning in 1968 and largely completed by the middle of the 1970s.
- The foreign exchange controls that had permitted the isolation of Japanese capital markets from international financial markets were increasingly dismantled during the 1970s, and the changes were ratified by the new foreign exchange law of 1980.
- Tariffs were lowered and quotas were ended in a non-reversible movement.
- The ability to use buy-domestic policies in government procurement has been lessened as the result of international controversy and negotiation.
- Virtually all export promotion programs (except for the one tax break allowed to medium/small firms in the form of a reserve for overseas market development) were dismantled.
- Interest rates charged by the Japan Development Bank ceased to be very far below commercial rates, lessening the advantage of JDB loans.
- The quantitative and qualitative role of the Japan Development Bank in financing industry has diminished to a very minor one as the economy has become larger and more complex and capital shortages ended.
- The government shows less willingness to grant new exceptions to the antitrust law, and has presided over a reduction in the number of cartels allowed under special legislation.
- The Ministry of Finance has been less willing to grant favorable tax treatment because of the desire to reduce fiscal deficits, so that the number of special tax breaks and the revenue loss resulting from them has declined to a low level.
- Government public works policy has been redirected from industrial infrastructure to broader social concerns, as evidenced in the shift of spending under the Fiscal Investment and Loan Program (FILP).

These changes add up to a great reduction in the government actions that fall under the label of industrial policy, and in the "sticks" available to the government to enforce its policies. The tools currently available to the government to carry out its industrial policy goals are thus much depleted. At the present time, the government has the following tools remaining:

- Planning and forecasting at both the macroeconomic and the microeconomic levels.
- Modest levels of loans available through government financial institutions, although traditional areas such as transportation co-opt most of the funds available, leaving little for direction to new industries.
- Modest levels of support for R&D, including permission for joint R&D projects.
- Greater willingness to condone cooperative industry action in general than is the case in the United States, although whether this constitutes a benefit to industry remains a matter of controversy.
- Some tax breaks.

The Japanese are aware that these changes imply that industrial policy is less important or effective today than it was two decades ago. Professor Hiromi Arisawa of Tokyo University, one of the architects of Japanese industrial policy during the period of prime minister Shigeru Yoshida, agreed in an interview for this project that the significance of policy today is smaller than in the past. At the same time as these great changes in government policies and enforcement tools have occurred, the government bureaucracy has remained intact and must justify its existence. Therefore, MITI and other economic ministries will continue to articulate policies toward industry, giving the appearance of great activity, even though the tools that can be manipulated are much reduced.

Ways in Which Americans Exaggerate Japan's Industrial Policy

Americans writing about Japan's industrial policies often exaggerate or misinterpret what has happened in the past and what is happening now. The above discussion has demonstrated that only a few of the many elements of industrial policy either were or are still significant. However, much of the characterization of Japan's industrial policy by American writers attributes far greater importance and effectiveness to it than is justified. Why? The problem stems from a number of questionable assumptions in these writings.

Assume Too Much Government Authority

Writers often treat the Japanese bureaucracy as a powerful, independent operation that makes economic judgements obeyed by everyone. Japanese bureaucrats would like very much to have the degree of power that Americans attribute to them, but much of this is illusory.

Consider the characterization of the Japanese bureaucracy provided by John Zysman and Stephen Cohen, two professors at the University of California at Berkeley who have been active in the pressure for an industrial policy in the United States: "This powerful bureaucratic machine is insulated from detailed political supervision—or interference—by a conservative majority which 'reigns,'

that is, provides the symbols of power and general direction, while the bureaucrats rule."[76] While the Japanese bureaucracy is more powerful and more independent than the U.S. bureaucracy, this statement remains a gross misrepresentation of government and politics in Japan. The Liberal Democratic Party (LDP) has been in power since 1955, but in the Japanese context, it must be responsive to the political will of the people and the opposition expressed by the minority parties or risk losing its majority. This responsiveness led to the strong shift in the 1970s toward policies of social infrastructure improvements and increasing welfare payments, which do not fit the notion of a bureaucracy single-mindedly pursing economic growth or acting for the benefit of industry. As pointed out above, Japanese policies often have a social motivation which the bureaucracy would not allow if left to its own.

Much of the view expressed by Zysman and Cohen seems to stem from reading Chalmers Johnson, a writer who has glorified the powers and effectiveness of MITI. While Johnson has provided an admirable look at the internal workings of this government ministry, his analysis of MITI's interaction with the economy is weak. The very title of his book, MITI and the Japanese Miracle, indicates his basic premise, that MITI was largely responsible for the success of the Japanese economy. Consider the following statement from his book, which describes MITI's success of the 1950s: "Using FILP, the Development Bank, the Industrial Rationalization Council, and several other powerful institutions, the Enterprises Bureau [of MITI] single-mindedly turned the Japanese industrial structure from light, labor-intensive industries to steel, ships, and automobiles, of which Japan is today the leading producer."[77] The contrast between that statement and the analysis provided above is overwhelming.

A recent study by the Urban Institute makes a similar exaggeration about the power of the government in the economy: "Industrial development capital in Japan goes where government decides it should."[78] Except for the Occupation period, when Japanese private sector institutions were in disarray and bottlenecks demanded government direction, this statement does not fit with any of the facts presented earlier about private and government lending patterns. As a characterization of present-day Japan it is simply silly.

Assume Too Much Far Sightedness

Some people assume that when MITI picks an industry for growth, it then puts together a package of promotion measures which will be phased out when that industry matures. Protection from imports, as part of such a package, is likewise viewed as intended to be temporary. However, Chalmers Johnson, in one of his useful insights into the internal workings of MITI, clearly demonstrates that the liberalization of trade and capital in the 1960s was a shock to the ministry and was brought by outside pressure, not by a far-sighted plan.[79]

Once the trade barriers were on the way to being lowered, protectionism was no longer available as a major tool for the next generation of leading-edge industries. Even for computers, the decision to end investment restrictions in the early 1970s was not motivated by a recognition that the industry was no longer an infant and should be stripped of protection for economic reasons. This is pointed out by Chalmers Johnson: "However, by the mid-1970s MITI realized that protectionism could no longer be used as one of its policy tools, and it therefore scheduled full liberalization (of foreign investment in) the computer industry."[80]

The belief in a consistent and far-sighted policy also stands at odds with the examples of industries that have become important to Japan despite their failure to be targeted for favors by the government. For example, the government never anticipated that automobiles would become the largest source of Japanese exports. Televisions, stereo equipment, camera equipment and other products never received much attention from the government either, but also managed to become world-class competitors.

Ignore Other Economic Factors

Writings about Japanese industrial policy often ignore all economic factors other than policy procedures. This is a simplistic and unrealistic way in which to evaluate the effectiveness of those policy measures, as is obvious from the successful industries just listed above that grew without special attention from the government.

A prime example of this problem is the Semiconductor Industry Association's (SIA) recent study charging the Japanese government with use of industrial policy to create an unfair advantage in world trade for the Japanese semiconductor industry.[81] One looks in vain in this study for anything other than government policy as an explanation of why the Japanese industry became successful. The study ignores such factors as the greater degree of vertical integration in the Japanese industry, Japanese attention to quality control, the role of luck in design choices, industry R&D other than the projects sponsored by the government, or the timing of investment decisions.

Chalmers Johnson is also guilty of ignoring other economic factors in his book about MITI. His statement about MITI's use of industrial policy tools to shift resources in the economy to steel and other leading industries is followed by token reference to other features of Japan that may have contributed to the shift in industrial structure from light to heavy industry. However, the reference remains a token one and no substantive discussion of these other factors appears anywhere in the book. As a result, he sometimes attributes to MITI developments that had virtually nothing to do with government policy: "As early as 1953 the ministry's powerful Industrial Rationalization Council . . . called for the 'keiretsu-ization' of trading companies and manufacturers. This meant, in practice, that MITI would assign an enterprise to a trading company if it did not already have an affiliation."[82] To think that MITI was instrumental in the formation of *keiretsu*—loose groupings of Japanese firms with membership largely along the lines of the prewar *zaibatsu*—is simplistic and silly. Even if MITI provided verbal encouragement, the initiative did not come from MITI but from the former *zaibatsu* interests. It took no great insight on the part of MITI to allow this development.

Another example from Chalmers Johnson is his discussion of the "Okano plan," MITI's first articulation during the 1950s of its concept that Japan needed to follow "heavy and chemical industrialization" in order to break out of the comparative advantage "trap."[83] Because of such statements by MITI, Johnson goes on to assume that Japan's subsequent movement in that direction

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[76] John Zysman and Stephen S. Cohen, *The Mercantilist Challenge to the Liberal International Trade Order: A Study Prepared for the Use of the Joint Economic Committee, Congress of the United States* (December 29, 1983), p. 11.

[77] Chalmers Johnson, p. 240.

[78] Phyllis Levinson, et. al., *The Federal Entrepreneur: The Nation's Implicit Industries Policy* (Washington: The Urban Institute, April 1982), p. 17.

[79] Chalmers Johnson, pp. 275-278.

[80] Ibid., p. 302.

[81] Semiconductor Industry Association, *The Effect of Government Targeting on World Semiconductor Competition* (Cupertino, CA: Semiconductor Industry Association, 1983).

[82] Chalmers Johnson, p. 206.

[83] Ibid., p. 288.

was the result of MITI policy and not private sector market forces. But Japan had already been moving in that direction before the war. Japan possessed a vigorous private sector that had been the mainspring of growth since the 19th century, and to suppose that industry did not see where its future lay without heavy leadership from MITI is an unreasonable assumption.

A final example from Johnson is his discussion of Tanzan Ishibashi's contribution to MITI thinking. Ishibashi argued in the late 1950s that the key to success in industry was to enlarge production by focusing on the domestic market as well as exports.[84] Are we then to suppose that the development of the domestic market in Japan was the result of MITI policy? This development pattern—domestic market first and then exports when products reached a point of international competitiveness—characterized Japan's development process since its beginning, as has been carefully analysed by a number of economists.[85] This pattern of development had nothing to do with government actions.

Johnson goes on to support his belief that MITI fostered the development of a domestic market when the ministry's ideas were adopted by the government in the form of income tax cuts and the elimination of excise taxes on targeted products in order to make them easier for consumers to buy (such as transistor radios and televisions): "Annual reductions in the individual income tax rate in proportion to the growth of the economy, plus selective elimination of excises, thus fueled a made-in-Kasumigaseki 'consumer revolution.' "[86] However, income tax cuts had a lot less to do with industrial policy than they did with preventing rapid income growth from pushing all taxpayers into higher income brackets—the tax bite did not fall, it just did not climb steeply. His position also ignores rapid income growth as a factor in consumer demand, not to mention improvements in roads (in demand for automobiles), availability of products, improved quality and design of products, falling prices with productivity gains and mass media attention capitalizing on unmet consumer demand as other factors in creating rapid expansion of sales of consumer durables as they were introduced to the market.

Equate the Existence of Policy with Its Use and Effectiveness

Just because the Japanese government makes a statement or adopts a particular policy, it does not mean that the policy is actually used in an important way. Prime examples of this are the assumptions made by Americans about the Structurally Depressed Industry Law of 1978. This law included a fund that could lend at low interest rates to industries facing financial difficulties because of the mandated closing of plant and equipment that had formed the collateral for bank loans. This fund was not heavily used, with the only loans going to several of the small shipbuilding companies.

This is not the picture of the policy drawn by Robert Reich when he speaks of the Structurally Depressed Industry Law: "The key to success of the program lies in the explicit subsidies given to firms that agree to scrap excess capacity and in the firms' use of these subsidies to retrain and relocate their workers."[87] He then claims that the subsidies achieved two objectives: getting the least competitive firms to exit the industry and providing workers with adjustment assistance that cushioned and accelerated change. However, the funds provided under the Structurally Depressed Industry Law were loans and not subsidies (with the only subsidy element coming from the lower interest rates). There is no evidence whatsoever that the program as a whole or the availability of funds encouraged inefficient firms to exit. In fact, the opinion of economists is that the law actually kept inefficient firms in the affected industries by substituting concensus and fairness standards for the harshness of the market mechanism.

Another example of this kind of false assumption is Chalmers Johnson's assertions concerning the role of MITI in moving Japan away from reliance on Mideast oil after the oil disruptions of the 1970s. Johnson states that the ministry managed to convert "most" electric power generation from oil to LNG, LPG and coal.[88] In commenting on this, Philip Trezise of the Brookings Institution argues that the rise in the price of fuel provided a much more important signal to the utilities to move away from oil than any guidance from MITI. Nor is it true that most power generation has shifted away from oil; between 1974 and 1981 the dependency on petroleum in electric power generation declined, but only from 55 percent to 38 percent.

Fail to Recognize the Changes Over Time

This failure in looking at the Japanese experience seems to crop up unintentionally by failing to extend descriptions of the past toward the present; descriptions of the past often are not followed by statements as to whether or not such policies are still in operation. Likewise, research or reports completed in the past are often interpreted by readers to be applicable to the present, even though Japan has been changing so rapidly that no descriptions more than a few years old can be taken as accurate any more. Even Mr. Yano, a MITI official who did the Japanese translation of Chalmers Johnson's book, pointed out in his introduction that the analysis extends only to 1975, and that the situation by the 1980s was considerably different. That is a significant admission considering how complimentary the book is of MITI and its role in the economy.

John Zysman and Stephen Cohen blur the distinction of past and present by stating baldly that Japan is "a fast growth system in which the government has made a commitment to aggressively promote international industrial competitiveness for what are essentially national security purposes."[89] Japan has not been a high growth system for a decade, nor do the remaining policy tools permit a very "aggressive" role in the 1980s. Their statement is more characteristic of MITI attitudes in the 1950s. This is not to deny that MITI has an active interest in promoting industries of the future, but their statement gives a totally misleading view of the importance of MITI's current position in industrial policy, or of the position of industrial policy relative to other societal goals.

Fail to Balance Success Stories Against Non-successes

Even among the industries that fall under the jurisdiction of MITI, not all of those that have been "targeted" have grown as hoped. Aircraft and aerospace are examples of this. Another example is the distribution sector, where MITI's interest and promotion of rationalization through encouragement of super stores (combination supermarkets and discount stores) and co-ops of small shopkeepers has been reversed by political opposition from small shops, so that current policy hinders rather than promotes rationalization and greater efficiency at the retail level.

Even MITI officials are willing to admit that some of the industries that have been the target of policy have not

[84] Ibid., p. 229.

[85] See, for example Masao Baba and Masahiro Tatemoto, "Foreign Trade and Economic Growth in Japan: 1858-1937," in Lawrence Klein and Kazushi Ohkawa, eds., *Economic Growth: The Japanese Experience Since the Meiji Era* (Homewood, IL: Richard D. Irwin, 1968).

[86] Chalmers Johnson, p. 236.

[87] Robert B. Reich, *The Next American Frontier* (New York: Times Books, 1983), p. 199.

[88] Chalmers Johnson, p. 303.

[89] Zysman and Cohen, p. 10-11.

been successes: Naohiro Amaya, a recent MITI vice minister, has written that he considers coal, oil and petrochemicals to represent industrial policy failure, where even a relatively heavy government presence failed to bring about the desired structural changes or was based on false government assumptions, or provided excessive protection with discouraging effects.[90] Writers, including Zysman and Cohen, ignore these problems or failures in painting their very glowing picture of industrial policy in Japan.

Not only did some industries targeted for growth fail to grow, some of those that were promoted were not consistent with the goals of more rapid economic development. Support for the domestic coal industry in the late 1950s in the face of cheap imported oil, support for the shipping industry despite consistently low rates of return, and support for an increasingly inefficient agricultural industry all demonstrate that the government does not consistently back those industries that are "winners". Philip Trezise nicely reinforces this point by noting in his testimony to Congress that the sectors and industries to which government financial support flows are not great successes.[91]

Even for those industries under MITI jurisdiction, Americans seem to assume that any industry that was targeted must have been important for growth and development of the economy. That argument cannot be sustained for coal beyond the mid-1950s or ocean shipping in the 1970s. Some of the other industries characterized by economic inefficiency are not under the purview of MITI, and the interest in efficiency (at the expense of other social goals) was often not as strong elsewhere in the government.

Even MITI officials recognize that economic efficiency can be only a goal or ideal and that actual policy in promoting, protecting or otherwise supporting industry will end up being shaped by other social or political motives as well. MITI materials, for example, recognize the importance of the needs of (inefficient) small shopkeepers when discussing distribution sector policy.

Exaggerate the Government's Financial Role

Many of the writings about Japan are very short on numbers, and thereby slip into an exaggeration of this role by failing to understand the relative size of government financing of the private sector. This is a critical point, since government financing is one of the essential parts of influencing the allocation of resources in the economy.

Zysman and Cohen fall victim to this fallacy when they state that one of the three sets of powerful tools available to Japanese bureaucrats is "a state-dominated financial system that allows state bureaucrats to act as players in the industrial marketplace."[92] Even by the late 1950s this statement amounts to a monstrous exaggeration of the extent of the government's financial role, and by the 1980s, the data presented earlier show this to be ludicrous. Government's share of total lending to the private sector is small; it is not biased toward emerging industries, but toward utilities, transportation, and other physical infrastructure. Also, the capital shortage that once allowed some government role in capital allocation is long gone and changing social concerns have diversified the demands put on government funds away from industrial development to other uses.

Zysman and Cohen voice another common perception that falls into this category: that the high debt levels of Japanese corporations are possible because the Japanese government is the implicit guarantor of debt in the last resort because a corporate bankruptcy would endanger the whole financial system, a development that the government would not tolerate.[93] This belief is factually incorrect since the bankruptcy rate is consistently higher in Japan than in the United States. In addition, high debt levels in the corporate sector are also acceptable for reasons completely unrelated to any government guarantees; corporate assets in Japan are seriously undervalued because they are carried at purchase price, which makes a huge discrepancy for real estate holdings. Studies which try to adjust balance sheets for this discrepancy find that the difference between the debt structure of Japanese firms and U.S. firms is much smaller than the raw data indicates.[94] In short, bankruptcies do occur in Japan, and do not hold as severe consequences for the financial sector as assumed; the Japanese government provides no more of an implicit guarantee to its corporations than does the United States.

Chalmers Johnson illustrates another problem of analysis when looking at the importance of Japan Development Bank loans; "A JDB loan, regardless of its size, became MITI's seal of approval on an enterprise, and the company that had received a JDB loan could easily raise whatever else it needed from private resources."[95] This statement could be true (although hardly to the "whatever else needed" extent) but it remains a piece of unexamined mythology about Japan. One also wonders why so much of JDB loans go to the electric power and shipping industries if such loans were supposed to open doors to private banks for them? Obviously, commercial banks consider many factors in deciding to make loans, of which one may be the presence of JDB loans. The market for commercial loans is not more than marginally under the influence of the Japan Development Bank.

More extreme versions of this view of the importance of government financing include the Industrial Bank of Japan and the Long-Term Credit Bank of Japan along with the JDB as making indicative loans that acted as a guide for commercial banks. As discussed earlier in this study, these three banks collectively lend to most of the firms listed on the Tokyo Stock Exchange, implying that no useful signals are being sent to the commercial banks.

These misperceptions about the importance of government financing in Japan carry over into the U.S. consideration of industrial policy. Material accompanying the submission of H.R. 2991, describing the proposed National Industrial Development Bank, states: "The Japan Development Bank has been a key force in Japan's economic miracle and most recently has been crucial to Japan's rapid development of a domestic robot industry."[96] As described above, JDB support of robots consists primarily of loans to JAROL, a rather modest operation, and has been by no means "crucial" to the development of the robotics industry.

Coordination of control over the commercial banking system is also badly misinterpreted. Chalmers Johnson apparently believes that MITI is the ultimate source of control over the allocation of credit through the commercial banking system: "If the Bank of Japan or the city banks had ever ventured very far from MITI's guidelines and taken on support of an undesignated industry, the risks not just to a particular bank but to the whole system would have

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[90] Naohiro Amaya, "Sangyo Seisaku Hihan e no Kaito" (A Response to the Criticism of Industrial Policy), *Voice*, August 1983, pp. 86-87.

[91] Philip Trezise, "Statement."

[92] Zysman and Cohen, p. 11.

[93] Ibid., pp. 18-19.

[94] Iwao Kuroda and Yoshiharu Oritani, "A Reexamination of the Unique Features of Japan's Corporate Financial Structure," *Japanese Economic Studies*, Summer 1980.

[95] Chalmers Johnson, p. 211.

[96] Material received from office of Rep. Stanley Lundine.

become intolerable."[97] That MITI could exercise such control over an industry (commercial banking) not under its jurisdiction in a government where ministries jealously guard their jurisdictional boundaries even more fiercely than in the United States is absurd. Even if there were evidence showing a convergence of commercial bank lending pattens and MITI targeting of industries (evidence not offered by Johnson), it would not prove the hypothesis since that direction of structural change in the economy was common knowledge—and largely a matter of common sense given Japan's position as a late developer.

Overemphasize Markets

All of the above criticisms have been directed against statements that exaggerate or misinterpret the extent of influence of government policy in shaping the Japanese economy. Now there is a new school of opinion in the United States which goes to the other extreme, claiming that Japan is a paragon of the free market and supply-side policy success.

David Henderson, of the Council of Economic Advisers, expressed this view in response to a Fortune Magazine article: "Japan teaches a lesson not about the value of economic planning, but about the vitality of the free market."[98] That statement is rather accurate, but he then goes on to state: "It is no coincidence that Japan's two decades of greatest postwar growth were also its decades of lowest taxes—and that during the 1970s, as Japan's taxes rose . . . real GNP growth declined."[99] The causes of Japan's rapid growth in the 1950s and 1960s were many and complex; that the government kept the tax bite from increasing at that time of tremendous private sector investment demand was one of those causes (as discussed earlier), but only one and hardly the determining factor. The slowdown of growth in the 1970s was unconnected with changes in taxation.

The Heritage Foundation, a conservative research group, has joined this misuse of the Japanese experience. It states: "The irony is that the contribution (of the Japanese government) has been based not so much on what it did for the economy, but on how much it restrained itself from doing. Interference in the economy has been sporadic and slight—including efforts aimed at industrial development."[100]

These studies are on strong ground when they state that competition is vigorous in Japan, and they are joined by other economists in expressing that view. For example, Professor Eleanor Hadley of George Washington University finds the Japanese economy characterized by intense rivalry for market share that has no equivalent in the United States, as well as greater concern for competitiveness because of a focus on international markets, where price competition tends to be very keen.[101] Nevertheless, the Henderson and Heritage Foundation view errs by inferring from the state of competition in Japan that government involvement in industrial policy in the 1950s was not extensive. While this study has tried to point out that those policies were and are far less important to industrial development than Americans tend to believe, to deny their existence is equally foolish. Japan is not an appropriate model to champion conservative beliefs in government.

Fail to Put Japan into International Perspective

One of the principle problems of analyses of Japan is that they focus exclusively on Japan. To say that Japan follows a certain policy tells us very little if the intention is to evaluate the fairness of these policies. Chalmers Johnson does this in an earlier book on government-owned corporations in Japan, in which these companies are described as a unique Japanese feature despite the fact that most of them have functional equivalents in the United States.[102] Only a few analysts, such as Garv Saxonhouse, have provided explicit comparisons between Japan and other countries in their studies. The next section, then, focuses specifically on industrial policy in the United States and how it compares to Japan.

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[97] Chalmers Johnson, p. 203.

[98] David R. Henderson, "The Myth of MITI," *Fortune*, August 8, 1983, p. 114.

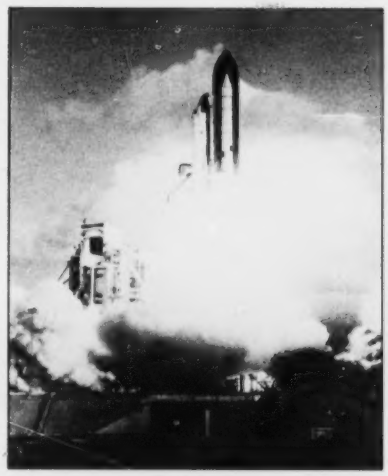
[99] Ibid.

[100] Katsuro Sakoh, "Industrial Policy: The Super Myth of Japan's Super Success," *Asian Studies Center Backgrounder* (Washington: The Heritage Foundation, July 13, 1983), p. 14.

[101] Eleanor Hadley, "U.S. Trade Problems with Particular Reference to Japan," in Leon Hollerman, ed., *Japan and the United States: Economic and Political Adversaries* (Boulder, CO: Westview Press, 1980), p. 71.

[102] Chalmers Johnson, *Japan's Public Policy Companies* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1978).

Industrial Policy in the United States



Broad analysis of industrial policy in the United States is a relatively new development. In the past, economic analyses of public policy toward business focused almost exclusively on antitrust policy and economic regulation. This is now changing as the nation addresses the question of whether or not to establish a new set of policies and institutions. This study argues that close analysis of U.S. policy reveals that industrial policies are more extensive than most people realize. These policies may be more ad hoc and less well coordinated than those in Japan, but the previous sections of this study have indicated that Japanese policy is not entirely unified either. If Japanese industrial policies are more effective than those in the United States, it is because of differences in the detail of how policies are structured and carried out, not because Japan has many policies which the United States does not.

Philosophy

One of the blunders that gets in the way of understanding both Japan and the United States is national-self perception. The Japanese have an ideology that says that industrial policy is justified and useful to the development of the economy. Americans have an ideology that says that government in the marketplace is undesirable. These ideologies or stereotypes get in the way of seeing what is actually happening.

The avoidance of the idea of industrial policy in the United States is reflected in the fact that the phrase itself has come into use only in the last few years. Yoshihiko Morozumi, the former vice minister of MITI mentioned earlier, reminisced that he attended an OECD meeting in 1970 where the American and European delegates did not understand what the Japanese meant when they used the phrase industrial policy. In the past, American economics textbooks also reflected this by restricting their discussion of government policy toward industry mainly to antitrust policy.

The Reagan administration represents the position that government should stay out of the market as much as possible. When the President announced the formation of the National Commission on Industrial Competitiveness in 1983, he stated that "the history of progress in America proves that millions of individuals making decisions in their own legitimate self-interest cannot be outperformed by any bureaucratic planner."[103] Similar views have been expressed by Edwin Harper, formerly of the White House staff, and now on the new industrial competitiveness commission, who stated in the administration's first major pronouncement since the industrial policy question became popular the "government's role should be to build a firm foundation and keep the rules of the game fair."[104]

This ideology of minimizing the government's intervention in the marketplace in not universally shared in the United States, and has been a traditional dividing line between Republicans and Democrats. The current industrial policy proposals introduced before Congress by the Democrats illustrate their different philosophy. While heartily endorsing free-market capitalism, the Democratic Caucus of the House supported a more interventionist role for government, as in its summary statement: "Just as it has done throughout our history—in building the canals, in creating the land grant colleges, and in encouraging research in agriculture and in space—government must be a vital partner [to the private sector]."[105]

These splits in ideology or philosophy in the United States appear to be deeper than is the case in Japan, where there is a rather well-established and broad consensus on the legitimacy of an active government role, despite the criticisms of the late 1960s when pollution was a heated topic. Part of this difference between the two countries goes back to the deep distrust of business by some groups in the United States and their desire to use government to control business, a distrust rooted in the 19th century and the establishment of antitrust laws. The Japanese often assume that Adam Smith is the godfather of American economic attitudes, but the U.S. economy has never approached the laissez-faire model of Adam Smith, nor were his writings ever universally accepted as a valid or desirable model in the United States.

Despite the splits in ideology, though, the ideal in the United States remains one of minimizing government intervention in the private sector. Anyone advocating government involvement is therefore required to justify his position by demonstrating that the market has failed to efficiently or fairly allocate resources. In a general sense this is true in Japan as well. However, the Japanese seem to more readily and willingly accept the proposition that markets may fail, which makes acceptance of an active government role somewhat easier to achieve.

With these differences in attitudes in mind, the following pages consider the major features of the U.S. industrial policies in the same broad perspective as was done for Japan. Providing comparisons to Japan at each step, the two countries begin to appear much less different than is commonly supposed.

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[103] Japan Economic Institute, "Administration Establishes National Commission in Industrial Competitiveness," *JEI Report*, No. 31B, August 19, 1983, p. 3.

[104] Edwin L. Harper, "Address to U.S. Chamber International Forum," Wednesday, June 15, 1983.

[105] Democratic Caucus, U.S. House of Representatives, Caucus Committee on Party Effectiveness, *Rebuilding the Road to Opportunity: A Democratic Direction for the 1980s* (September, 1982), p. 17.

Macroeconomic and Macrosocial Policy

This is an enormous topic by itself, and many aspects of macro policy are largely peripheral to the present topic. Just as in Japan, government action at this level has strong social or political objectives that may be rather unrelated to industrial policy, though the same problems exist in defining any boundaries between what is or is not related to industrial development. However, several aspects of policy are clearly related to industrial policy and the comparison to Japan: tax policy, education and public works.

Tax Policy

Some of the decisions made in U.S. tax policy have been taken with the strongly intended goal of promoting industrial growth. The investment tax credit of the Kennedy administration, the changes in capital gains treatment in the Carter administration, and now the Reagan tax cuts and changes in depreciation allowances have all had the promotion of industrial development as their goal.

As in Japan, not all tax incentives are easily measurable in terms of estimated loss of tax revenue. However, for those that are, the fiscal year ending September 30, 1982 shows tax revenue losses of $38.0 billion stemming from measures identifiable as related to the corporate sector (see Table 20). Of these, the largest was the investment tax credit, leading to a revenue loss of $20.0 billion. Relative to the size of actual corporate income tax revenue, these losses were 81 percent.

None of these calculations includes losses from measures related to housing, capital gains or other consumer credit, which also have an economic impact, though proponents of industrial policy lament the siphoning of resources away from industrially productive investment due to tax incentives for housing. The reduction in capital gains taxes in 1978, for example, are widely believed to have led to a resurgence in venture capital funding. In 1982, the tax loss due to capital gains provisions came to $18.3 billion. Housing incentives amounted to estimated revenue losses in 1982 of another $34.0 billion, while consumer credit interest deductions came to $9.3 billion.

In their work for the Brookings Institution study of the Japanese economy a decade ago, Joseph Pechman and Keimei Kaizuka tried to compare U.S. and Japanese tax systems in the 1960s. A major problem facing them was that the data are not comparable.[106] For example, while the U.S. shows a revenue loss for capital gains, Japan shows none because there is no tax on capital gains. Nevertheless, the size of the revenue losses for tax measures tied to particular types of activities (investment, oil exploration, research and development, etc.) are far more extensive than those reported in Japan. In the previous section, the revenue losses due to special measures applicable to the corporate sector in Japan were listed as only 1.9 percent of corporate tax revenue in fiscal 1981. Even considering the difference in what could be termed a special tax measure, it would be difficult to justify a statement that the Japanese tax system provides greater benefits—general or targeted—than does the U.S. tax system.

In addition to the differences in tax breaks, the previous section of this study has already pointed that the Congressional Research Service report concludes that the overall level of corporate taxes in Japan is higher than in the United States. With the lower level of corporate taxes in the United States and the greater prevalence of tax breaks, the United States appears to do more to use its tax system to encourage industrial development than does Japan.

[106] Joseph Pechman and Keimei Kaizuka, "Taxation," in Patrick and Rosovsky, *Asia's New Giant*.

Table 20: Government Revenue Loss from Business-Related Tax Breaks FY 1982
(in billions of dollars)

DISC	$ 1.5
Expensing of Research and Development	0.4
Credit for Increasing Research and Development	0.4
Oil and Gas Exploration Expensing	4.1
Oil and Gas Depletion Allowance	2.0
Depletion Allowance for Other Fuels	0.4
Capital Gains Treatment of Coal Royalties	0.1
Residential Energy Credits:	
Supply incentives	0.2
Conservation incentives	0.4
Alternative Energy Conservation and New Technology Credit:	
Supply incentives	0.2
Conservation incentives	0.3
Depletion Allowance for Non-fuel Minerals	0.4
Exclusion of Interest on State and Local Pollution Control Bonds	0.8
Capital Gains Treatment of Certain Timber Income	0.6
Exclusion of Interest on State Industrial Development Bonds	1.6
Bad Debt Reserves at Financial Institutions	0.2
Expensing of Construction Period Interest	0.7
Investment Credit	20.0
Safe Harbor Leasing Rules	3.6
Total	38.0

Source: Department of Commerce, *Statistical Abstract of the United States, 1982-1983.*

Education

Education policy in the United States has been the target of endless debate and shifts in emphasis. Almost everyone seems to be dissatisfied with the quality of education at the present time, and in the discussion over what to do many are pointing to the importance of education for the economic health of the economy.

As a result of the highly pluralistic nature of American society, the goals of education have bounced between basic skills (reading, writing, arithmetic, and science) and non-economic values such as equality and humanities. At the present time the swing is back to the basics, seen in the trends toward instituting strict graduation standards, stricter standards for teachers, longer hours, more homework and longer school years in many school districts around the country. The Democratic Caucus policy statement on industrial competitiveness quoted above also calls for greater commitment to science education at the university and grade school levels, including computer "literacy" for all students by the end of the decade and an increased emphasis on excellence in teaching.[107]

The analysis of education in Japan presented earlier suggested that policy conformed to the needs of the economy even though industrial development was

[107] Democratic Caucus, pp. 21-22.

far from the sole determinant of educational goals. However, it would be too simple to label Japan a success and the United States a flat failure. The two nations face dramatically different social structures, values and needs in education. The extreme racial, ethnic and religious diversity in the United States means that the educational system bears the burden of developing a common denominator of language and social tolerance that is important but totally different from Japan. On the other hand, Japan is not an unqualified success; the school system there tends to turn out young adults missing elements of character development that they do not acquire until later in life because the heavy study and exam pressures leave insufficient time for social development. Nevertheless, Japanese education outshines the United States enough that the reexamination of the quality of education and its importance for industrial development seems long overdue.

Not all education is for children, and the United States does provide rather extensive vocational training programs, mostly at the state level. Consider Ohio as an example. As part of its promotional materials to attract investment, the state government touts its educational and training programs.[108] They include supplying liaison people for coordination of training efforts between companies and area educational agencies, underwriting the cost of management development programs, training or retraining employees in companies undergoing major alterations, training employees to upgrade skills, training instructors for on-site training activity, and provision of financial assistance for developing instructional materials used for employee orientation and training. Supporting this system are 23 local-level consortia of educators and business leaders. Could anyone ask for a more clear example of education as part of industrial policy?

As the United States approaches the question of making education in general more relevant to the needs of the economy, it should be kept in mind that the route to improvement is not always obvious. One study of research and development points out that if a larger number of scientists is a desirable objective, then increasing money for R&D is an important tool since the job opportunities thereby created encourage more students to become scientists.[109] That is, the provision of education, and the desire of students to partake of the offering, depends on perceptions of the value of that education to their futures.

Public Works

No one could deny that government spending on public works has been used in the United States to promote industrial development. Pork-barrel politics may divert some of this effort away from the most useful investments (a problem in Japan as well), but the larger picture is more positive. The history of projects in which the government has invested that served the economy is a long one: the interstate highway system, federal support for state and local highway construction, inland waterway infrastructure, harbors, rural development (rural electrification and energy through organizations such as the Tennessee Valley Authority and Bonneville Power), and flood control, just to name a few of the major areas of activity in the recent past.

Some Americans criticize the political nature of some of the decisions about public works that lead to wasteful construction, such as unnecessary or economically unjustifiable river improvements. However, if the comparison is to Japan, it is by no means obvious that the United States has a worse record. Japan has had its problems with politically motivated construction of unnecessary rural railroad lines, the construction of stations on the high-speed Shinkansen rail line at the rural districts of powerful politicians, and a major expansion of the Shinkansen system into areas of the country with low population density and little economic justification.

Cheap Energy Policy

Since the 1930s the United States has had a policy of cheap energy through price controls and tax breaks. This ought to be considered part of industrial policy, as it has been by disgruntled Europeans who complain about the unfair advantage of U.S. petrochemicals, plastics and synthetic fiber industries that use petroleum-based feedstocks.

The United States is now dismantling this policy of low energy prices as rapid changes in the relative prices of different energy sources has put the structure of regulated prices sadly out of touch with the rest of the world and created artificial incentives to favor some forms of energy over others. However, the movement away from this regulated world has proven difficult, as indicated by the intense opposition to the deregulation of natural gas prices and the failure of Project Independence (intended to reduce dependence on imported oil). The Japanese tend to see in these problems a lack of consistency or far-sightedness in U.S. policy.

Import Policy

The United States has not avoided the use of tariffs or quotas in the past to protect and promote domestic industry, often under the rubric of fostering infant industries. Since the United States was an earlier developer than Japan, it is necessary to look at this policy in longer historical perspective.

Tariffs

Tariffs for the protection of industry were a recurring theme in the first half of the 19th century, at a time when the United States saw itself as catching up with Europe. The case for protective tariffs after establishment of the nation was first argued by Alexander Hamilton, but did not emerge as actual policy until 1816. From that point, tariffs tended to rise and fall with changes in government until a particularly high tariff in 1856, after which they remained rather high for the rest of the century.

The early use of tariffs by the United States illustrates the point that, although many see Adam Smith as the patron saint of the American economic system, he was never really the model of decisions. His ideas favoring free trade were challenged and rejected by other respected writers whose works were widely read in the United States at that time.[110] For example, Henry Clay refined Hamilton's arguments, presenting high tariffs as a means to promote American economic development by creating a home market for rising agricultural production and domestic raw materials.[111] His was definitely a dynamic view of economic development, and very interesting to see in light of the frequent Japanese criticism that U.S. policy tends to be based on a static view of the world. The concept and use of protective tariffs was so well developed in the United States that the German economist Frederich List credited his experience in the United States as providing

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[108] State of Ohio, "Job Training Programs," *Profit in Ohio Fact Sheet Series*.

[109] Richard Levin, "The Semiconductor Industry," in Richard R. Nelson, ed., *Government and Technical Progress: A Cross-Industry Analysis* (Elmsford, NY: Pergamon Press, Inc., 1982), p. 89.

[110] George R. Taylor, *The Transportation Revolution, 1815-1860* (White Plains, NY: M.E. Sharpe, Inc., 1951), pp. 362-363, provides a list of intellectuals and writers who favored high tariffs during this period.

[111] Harold U. Faulkner, *American Economic History* (New York: Harper and Brother, 1954), p. 164.

the basis for his own work on the subject.[112]

Tariffs were also a sectional issue in the United States. The South opposed tariffs because it imported manufactured goods and the North endorsed them because it was the locus of domestic manufacturing. Therefore, high tariffs were endorsed by the new Republican party upon its formation, and by its presidential candidate, Abraham Lincoln. With Republican control of the government for most of the rest of the century, high tariffs became a way of life until the 20th century. However, the evaluation of economic historians is mixed as to whether these tariffs actually resulted in more rapid development of industry than would otherwise have occurred.[113]

The idea of championing lower tariffs for expanded world trade is really a postwar concept in the United States. That development was also a conscious commercial policy, built on the belief that lowered tariffs and the expanded trade that they would bring would be of economic benefit to the United States and the world. That proposition is almost universally accepted by economists, but as the world leader in most industries at the end of the war by virtue of destruction in Europe and Japan, it was also natural for the United States to feel that tariffs and quotas were no longer necessary for domestic development.

The movement toward freer trade has now halted in the United States. Through a variety of restrictions over the past decade, including those affecting steel, automobiles, textiles, footware, televisions, and other products, the United States has had a very mixed record. Except with the recent restrictions on imports of automobiles, U.S. import barriers are no longer identifiable as motivated by protection of industries with strong long-term futures. It should be added that the United States also maintains some explicit quotas, including on imports of beef.

Domestic Preference

Domestic preference in government purchases, a modern successor to tariffs and quotas in commercial policy, are also used in the United States. The United States carries out a domestic preference policy in two ways—through buy-American legislation and through national security arguments on military-related material.

Buy-American legislation is not tied in any identifiable way to promotion of new or growing industries, but rather to mature or declining industries besieged with imports. It exists at both the federal and state levels and has expanded rapidly over the past decade, with a large part of the impetus coming from the steel industry.

At the federal level, a very strong buy-American bias is now built into federally funded highway construction projects. The Surface Transportation Act of 1982 greatly strengthened the previous buy-American bias by mandating the purchase of American-manufactured steel and cement for all federally funded highway work unless foreign products would reduce total project costs by at least 25 percent. A buy-American bias had existed previously, but this law raised the degree of price advantage (previously 10 percent) for American products, extended coverage to all contracts (whereas smaller projects had previously been exempted), and extended the list of affected products (which previously consisted only of structural steel). In addition to these construction projects, the law tightened buy-American provisions on mass-transit equipment, continuing the 10-percent price preference on American-made products and expanding coverage to all federally supported purchases, thereby including replacement equipment.

At the state level, a buy-American preference has also been growing. A recent study by the Japan Economic Institute found that at least 36 states maintained limits of foreign purchases through legislation, regulations or informal policies.[114] This represented a major increase from 23 states identified with such restrictions in 1973 in an earlier JEI survey.

The national security argument is a difficult one to evaluate—where is the boundary between legitimate national security concern and support for domestic industries? That boundary seemed rather fuzzy in the recent decision of the government to block Allegheny International, Inc. from selling its subsidiary, Special Metals Corp., to Nippon Steel because of fears that militarily sensitive technology would be transferred to Japan where the Soviet Union might obtain it. The Department of Defense, with its focus on defense and security, can easily draw the boundaries of national security restrictions far wider than others would consider legitimate; many elements of general national economic strength and the ability to wage war are closely correlated.

The national security argument is especially interesting because Japan is not a major military power. Yet the goal of economic growth took on the tones of national security, especially during the 1950s and 1960s. In order to survive in the world, the Japanese perceived a need to become strong economically. Without military might to provide security, this concern with industrial strength as a substitute is understandable, but the nationalistic policies that it spawned toward industries such as computers has not been acceptable to Americans. Economic strength as a functional equivalent to the national security argument is considered again later.

Positive Microeconomic Industrial Policies

As with Japan, each of the seven types of microeconomic policies is considered separately here. In many of these areas, the United States does as much or more than Japan.

Government Forecasting and Planning

The U.S. government does engage in forecasting on a microeconomic level, even though it does not receive the same press attention as in Japan. The major example is the *Industrial Outlook* published each year by the Department of Commerce.[115] This is not a document designed as a guide for government policy; it is only a forecast for the benefit of the private sector. However, it does identify growth prospects by industry, including honest assessments of those industries in decline. This publication is actually much more detailed and technically careful in its industry analysis than the MITI visions, and it provides far more data for each industry.

The main difference between the *Industrial Outlook* and the visions is that the Japanese effort is a consensus document, the result of discussion among the bureaus within MITI and between MITI and the business community. As such, it is more of a guide to government thinking than is the Commerce Department publication, where each industry analysis is signed, so that responsibility lies with an individual, not with the department as a whole.

This difference between the two forecasts is also evident in the language used for describing the future. Whereas the MITI visions speak of what the role of the industry in the economy ought to

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[113] Taylor, pp. 365-371; or Faulkner, pp. 167-168.

[112] Noboru Kobayashi, *Risuto no Shogai to Chosaku* (List's Career and Writings), pp. 520-521.

[114] Japan Economic Institute, "State Buy-American Restrictions," *JEI Report*, No. 39A, October 8, 1982.

[115] U.S. Department of Commerce, Bureau of Industrial Economics, *1983 Industrial Outlook for 250 Industries with Projections for 1987* (January 1983).

be and what government policy should be, the Commerce Department effort speaks only of assumptions or forecasts of what government actions might be, without presuming to speak with any authority. As pointed out in the section on Japan, the visions play a role of defining a desired future industrial structure, not just the one that is most likely. The *Industrial Outlook* does not have this as one of its functions.

Before criticizing the United States for being totally ad hoc or incoherent in its focus on the future of industrial structure, consider the differences in private sector forecasting. The United States has a better developed private sector economic forecasting industry, evidenced by the plethora of forecasting companies (such as Wharton Econometric Forecasting Associates, Chase Econometrics or Data Resources, Inc.) which provide medium-and long-range forecasts of the economy at a rather detailed level. This industry is more sophisticated and more widespread in the United States than in Japan, and as a result the government need play less of a role in coordinating a consensus view of the future. If one of MITI's objectives is to provide a guide to the private sector as to where it ought to be allocating its financial resources, then the private sector in the United States would appear to have adequate information to efficiently redirect resources without a similar government function. This point, though, is certainly debatable, and many in the United States are calling for some sort of institutionalized or regularized consensus-building framework on future industrial structure.

Government Lending Institutions

Government supply of financial resources to the private sector is one area where the United States is commonly presumed to be different from, and less active than, Japan. But in actuality, both the federal and state governments have significant private-sector financing functions. At the federal level, financing takes the form of both direct loans and a variety of guarantees. At the state level, there are direct loans, financing through special bond issues (both industrial revenue bonds and general obligation bonds) and some minor equity participation. There is very little equity financing at the federal level, but it is not entirely absent.

Federal—A recent study for the Urban Institute identified a large number of categories of federal financial aid. In total, it identified 149 programs that involved either direct loans, loan guarantees, in-kind assistance, bond guarantees, lease guarantees, or insurance.[116] Unfortunately, the Urban Institute study does not attach dollar amounts to each of these programs, and so gives no idea of the economic role or impact of government financing. However, the study does provide other data showing that in 1980 the federal government made new loans of $60.7 billion (of which $29 billion went to private business) and extended new loans guarantees of $147.3 billion (of which $107 billion went to private business.[117]

Other data confirm this extensive financial flow. In 1982, the federal government made new direct loans (net) of $20.8 billion, giving it outstanding direct loans of $205 billion.[118] This amount is approximately twice as much as is lent by the Japanese government (Table 10 shows ¥27.2 trillion or $116 billion in loans outstanding in 1982). Thus, the idea that the Japanese government lends more to the private sector than does the U.S. government cannot be sustained. Given the fact that the U.S. economy is approximately twice the size of Japan, the relative roles of the two governments in direct lending appear to be roughly the same.

In addition to direct loans, the federal government in 1982 made net additions to its loan guarantees of $44 billion, bringing the total outstanding loan guarantees to $353 billion.[119] The earlier section on Japan pointed out that explicit loan guarantees are little-used in Japan, except for two programs for medium/small firms and JDB guarantees on certain kinds of foreign currency borrowing. If the JDB direct loans act as a surrogate guarantee for a company's other borrowings, then the implicit loan guarantees are much larger in Japan, but one wonders if they would still approach the very large amount outstanding in the United States. One could also add that the United States seems to have as strong a commitment to the continued existence of large, important industrial firms as does the Japanese government, even without a JDB to provide loans. This is indicated by the willingness to provide guarantees for Chrysler Corp. and Lockheed Corp. when they were in financial difficulties. The federal government also provided guarantees for New York City, which, as the financial center of the nation and the location of many corporate headquarters, is important to American economic health.

The Urban Institute study also found that many of the programs providing financial assistance in the federal government are targeted either by type of firm or by industry. Of the 329 total programs identified which aid industry (including tax concessions, R&D support and others besides the 149 programs providing loans mentioned above), 30 percent are targeted by industry and 51 percent targeted by type of firm (such as minority owned).[120] By industry, the major target is agriculture, which seems very similar to the pattern in Japan.

The existence of an extensive federal role in business financing does not necessarily add up to a positive industrial policy. Much of the criticism of federal policy has been aimed at this area. If the government is going to continue this substantial financial role, the argument goes, then we ought to be more concerned about a general framework to guide the allocation of lending. The Urban Institute study, for example, calls upon the government to use its resources to play a "facilitative" role in industrial change and development, asking the government to "focus on those adversely affected by economic change and provide compensation for their losses and services to re-establish them in alternative employment."[121]

Whether the prescription of the Urban Institute is the desired one or not, Americans need to recognize and come to grips with the sizeable amount of federal government financing of private sector activity. If the conclusion is that the pattern of lending does not fit industrial development goals, then it should be changed. Lashing out at Japan for its government lending on the assumption that the United States plays no such role is foolish.

State—At the state level, financial assistance programs are quite extensive. The two principle forms of direct lending are industrial revenue bonds and general obligation bonds. Under industrial revenue bonds, the state issues a tax exempt bond to finance a firm's plant and equipment investment, and then leases or sells on an installment basis plant and equipment to the firm. General obligation bond financing works in much the same way, with the important distinction that the principal and interest on industrial revenue bonds can be paid only out of the receipts from the corporation, whereas principal and interest on general revenue obligations

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[116] Levinson, et. al., calculated from data in their appendix A.

[117] Ibid., p.135.

[118] United States Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1982-1983*, p. 254.

[119] Ibid.

[120] Levinson, et. al., p. 71.

[121] Ibid., p. 21.

can be met from general state government revenues if necessary (making them a lower risk financial instrument).[122]

A recent study by the Council of State Planning Agencies found that 48 states allow industrial revenue bonds, and 45 authorize their county and local governments to issue them as well. Fourteen states allow general obligation bonds for financing industry.[123] As noted earlier in the discussion on tax breaks, the estimated revenue loss from industrial bonds (foregone taxes on the interest income earned by holders of these bonds because of their tax-exempt nature) amounted to $1.6 billion in 1982.

Some other forms of direct financing exist as well. The Council of State Planning Agencies found 15 loan programs for plant and construction and 11 for equipment purchases with funds coming from general tax revenues. Some other states (with no numbers specified in the study) have similar programs using tax revenue plus other revenue sources.[124]

Equity provision is a rather new form of state support. The earliest example is Connecticut, starting in 1973 (the Connecticut Product Development Corporation). Now there are similar state government institutions in Massachusetts, Alaska and Kentucky. All of them act as venture capital firms supporting new companies, but without the intention of continuing a long-term ownership role. In general, the Council of State Planning Agencies study concludes that, since 1970 "there has been an explosion of new kinds of state owned financial intermediaries."[125]

The Office of Technology Assessment has carried out its own study of state programs aimed entirely or in part toward "high tech" industries. Of the 53 programs identified in the study, almost half offer some types of financial assistance: 9 program assist entrepeneurs in locating venture capital, 9 programs provide industrial revenue bonds, and 8 programs provide direct loans to high-tech firms. Examples of these activities include the Ohio Development Financing Commission (ODFC) and its direct loans, guaranteed loans and industrial development revenue bonds, all definitely aimed at new and growing companies. Maryland has its Maryland Industrial Development Financing Authority, which issues tax-exempt industrial revenue bonds to finance land, buildings and equipment (aimed at small businesses). Massachusetts has two programs—the Massachusetts Industrial Finance Agency and the Massachusetts Technology Development Corp.—both of which are in the business of providing financial assistance (the first through industrial revenue bonds and the second through venture capital).[126]

Thus, at least some of the many financial program at the state level are aimed at or available for firms that could be considered targeted as leading edge or future industries. Much of state-level activity, though, is focused on job creation without any specific consideration of whether those jobs promote the growth and development of the economy.

The overall effectiveness of these state-level programs in promoting industrial growth is largely unstudied. The OTA, for one, has not yet completed its consideration of the effectiveness of high-tech programs. However, industrial revenue bonds have been rather heavily criticized. For example, the Council of State Planning Agencies labeled them as impotent and irrelevant. The reason for this low reputation of industrial revenue bonds is precisely the point of substitution versus complimentary raised earlier. States use these bonds as an inducement to companies to locate plants in their state. But with almost all states engaging in this practice, the ability of any one state to win an advantage is washed out, while industry benefits from lower capital costs at the expense of the federal treasury. As with federal financing of industry, even if Americans are unsatisfied with the overall impact of the existing programs, they must at least recognize their existence and extensiveness.

A final note about state and local financing in the United States is that direct bond issues are used for many of the programs that are funded through the Fiscal Investment and Loan Program in Japan. The only difference is in the added financial intermediation in Japan. These programs include highway construction, harbors, airports and other infrastructure, and are financed through bonds issued either directly by the states or through special corporations run by the states (such as the New Jersey Turnpike Authority or the New York Port Authority).

Government Direct Study

Just as in Japan, direct subsidy is not a politically acceptable method of government involvement in many industries in the United States. The main recipients of direct subsidy—agriculture, rail passenger transportation and ocean shipping—also fit the pattern in Japan. The U.S. subsidies for ocean shipping have been far higher than those in Japan and have not prevented a continuing rise in the share of American cargo moving on foreign-flag vessels.

For firms facing financial difficulty, the preferred route for government involvement is the loan guarantee, as in the case of Chrysler, Lockheed and New York City. Neither country has believed in the idea of long-term direct subsidy to manufacturing industries, in contrast to European experience with industries such as steel. Some more indirect subsidy does go to industry, though, in the form of below-cost or free provision of services such as access roads, water supply or sewage treatment as part of the state-level attempts to attract industry.

Government R&D Policy

R&D policy constitutes a major part of U.S. industrial policy. In 1982 the United States spent $77 billion on research and development. Both the ratio of total R&D to net national income (2.97 percent in 1981) and the ratio to GNP (2.38 percent) remain significantly above the corresponding ratios in Japan (2.42 percent and 1.96 percent, respectively in 1980), although the gap between the two countries has been narrowing. Part of the gap is also due to the exclusion of social science research expenditures in the Japanese data presented earlier.

The official statistics also indicate that the overall U.S. government position in financing R&D is much stronger than the Japanese government position. The federal government spent $38 billion on research and development support in 1982, 46.7 percent of total R&D outlays in the country. This compares to the $5 billion (25.8 percent) spent by the Japanese government in 1980. Even with the slight difference in years of the data and the rapid growth of R&D funding in Japan, the fact remains that the United States government spends on the order of seven times as much for R&D support as does the Japanese government! Even if one were to try to adjust these data to include expenditures by government-owned institutions (such as the Japanese National Railways, Nippon Telegraph and Telephone, or the loans from the Japan Development Bank) not included in the official statistics as part of the government, it is doubtful whether the Japanese government role would come

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[122] Lawrence Litvak and Belden Daniels, *Innovations in Development Finance* (Washington: The Council of State Planning Agencies, 1979), p. 100.

[123] Ibid.

[124] Ibid.

[125] Ibid., p. 99.

[126] Office of Technology Assessment, *Technology, Innovation and Regional Economic Development: Background Paper, Census of State Government Initiatives for High-Technology Industrial Development* (OTA-BP-STI-21, May 1983).

anywhere near matching that of the federal government.

In contrast to what many Americans believe, a surprising proportion of the federal support for R&D is labeled as "development" and not basic research. For 1982, only $5.3 billion of federal funds went to basic research, while $7.3 billion went to applied research and $26.4 billion went to development work. Part of the heavy expenditure on development work is due to the presence of military technology. However, the Department of Defense accounted for $17.7 billion of that total in FY 1982, leaving $8.7 billion in development work funded by other departments, including $3.1 billion by the Commerce Department (mostly in the form of energy-related research).[127]

Moving beyond the overall picture, the United States has had varying degrees of success in its R&D policy. One clear area where it has not been successful has been in picking "winners." This is supported by the comment in a study of industrial policy edited by economists Gerard Adams and Lawrence Klein: "From an IP [industrial policy] perspective, it is probably desirable to keep public support untargeted or aimed at broad targets in the early states of the innovation process. This approach might be termed keeping the options open and would allow time for policymakers to see which projects come to fruition."[128]

Another study, edited by economist Richard Nelson, backs up this point. The study is based on case studies of federal R&D involvement in a number of industries: "Effective pursuit of technological advance seems to call for the exploration of a wide variety of alternatives and the selective screening of these after their characteristics have been better revealed—a process that seems wasteful with the wonderful vision of hindsight."[129] Japan would seem to be a contradiction to the comments just made because of the narrow concentration in some successful endeavors such as the VLSI project, but the desired direction of research has generally been more clear in Japan because of the technological lag in the past.

Besides this general comment on the undesirability of narrowly focusing government support, the Nelson study finds great variation in government involvement and the degree of success of that involvement across industries. It states that "the government has been an important source of both applied and basic-research funding in the evolution of aviation, computer, and semiconductor technologies. The government also has productively supported both applied and basic research in agriculture."[130] The study goes on to conclude that there has been less involvement in some other industries, such as pharmaceuticals (except cancer-related), and no effective program in housing or automobiles. Before criticizing Japan for its government R&D programs, Americans should be aware of this government role in the United States.

In addition to a wide variation in involvement across industries, the Nelson study finds that the government has often been most successful when its has been the buyer of the product. The supplier-buyer relationship has kept the government in touch with what are the useful lines of pursuit for research or development. It has been least successful in supporting commercial technologies in which it has no such interest and is trying to prod a disinterested industry (such as supersonic passenger planes). When it is not a direct purchaser, the government has also played a role through a number of other policies, including regulation (such as in the case of auto pollution), procurement (in solar energy), antitrust policy, patent policy, the tax code, and other measures.[131]

Elaborating on tax codes as an example of other measures by which the U.S. government encourages research and development, professor Gary Saxonhouse noted the differences between Japan and the United States in his statement to the International Trade Commission in 1983. The United States provides a larger tax break for increased R&D spending than does Japan. The federal government provides a 25 percent credit for an increase of R&D spending in the current year over the average of the past three years. Japan provides a smaller 20 percent credit for an increase in the current year over the highest year since 1972 and also has a cap on the maximum size of the tax break (10 percent of the corporation's total tax liability).

In addition to providing tax incentives and funding developments for its own use, the federal government actively encourages dissemination of technologies resulting from its own activities. These activities are documented at the federal level in the *Directory of Federal Technology Transfer*, which lists transfer programs for each department, complete with goals, conditions and contacts.[132] At that time, technology transfer programs ran the gamut of government departments and agencies.

One of the most active government agencies in the technology transfer process is the National Aeronautics and Space Administration (NASA). Its budget for technology transfer activities in FY 1980 was $12 million, falling slightly to $11.8 million in FY 1982. The Reagan administration tried to cut the budget to only $4 million in FY 1983, but Congress raised the level back to $9 million. The administration is once again trying to cut the budget to $4 million in the FY 1984 budget, but there is the expectation that Congress will once again restore the cut.

Technology transfer occurs at the state level as well, facilitated by the state university system and the attitude at the state level that universities should be contributing to the economic well-being of the state. The previously mentioned OTA study of state high-tech programs found 17 state-level programs designed to link industry and university resources. Examples are the Massachusetts Technology Park Corporation, the New York Science and Technology Foundation and the Science, Engineering and Technology Advisory Service of Virginia.

Even with the government activity to facilitate the transfer of technology to the private sector, there is considerable controversy over whether very much of federal government technology has significant spillover effects for the private sector. Professor Robert Reich, one of the proponents of a far more active government role, feels that there is little spillover: "Although U.S. defense and aerospace programs have spurred industrial development, they have not spurred it in the direction of commercial success. Apart from the space shuttle the Department of Defense and NASA have no interest in the successful marketing of new products."[133] This statement is open to serious challenge,

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[127] National Science Foundation, *Federal Funds for Research and Development. Fiscal Years 1981, 1982, and 1983* (NSF 82-326), pp. 14-15.

[128] Adams, Cherkes and Wescott, "Innovation, Technical Progress, and Industrial Policy: A Survey," in Gerard F. Adams and Lawrence R. Klein eds., *Industrial Policies for Growth and Competitiveness*, p. 46.

[129] Richard R. Nelson, "Government Stimulus of Technological Progress: Lessons from American History," in Richard R. Nelson, ed., *Government and Technical Progress*, p. 455.

[130] Ibid., p. 458.

[131] Ibid., pp. 470-480.

[132] United States, Executive Office of the President, Federal Coordinating Council for Science, Engineering and Technology, *Directory of Federal Technology Transfer* (Washington: U.S. Government Printing Office, June 1977).

[133] Robert Reich, *The Next American Frontier*, p. 190.

since the evidence seems to show that the actual impact has been to provide or enhance commercial success. Each year NASA prepares a glossy publication touting spinoff success when the time comes to press Congress for its next year's budget.[134] While these spinoffs are presented in a deliberate public relations manner, they do show a much wider range of technology originally developed to meet NASA needs than most Americans would suspect.

A brief list of just a few of the spinoff technologies listed in recent years by NASA is presented in Table 21. None of these technological developments were begun with the wider commercial applications as the primary goal, but they do constitute government activity or support leading to private sector development and growth, and as such ought to be considered a form of industrial policy. The language used by NASA to describe the importance of its transfer program sounds very much like the language of MITI publications: "Technology's role as an invigorant for economic growth is well established . . . Thus, the wealth of aerospace technology generated by NASA programs over the past 24 years is a valuable national resource. Since technology is transferable, that is an important asset in that it offers potential for new applications."[135]

Even some of the direct technologies in defense and aerospace have increased the competitiveness of American industry. The United States is a major world exporter of military hardware. The United States also has a commanding lead in the commercialization of space, with Europe a distant second and Japan just beginning. This international competitiveness is the direct result of the very heavy government role in these areas. The Landsat satellites launched by NASA have had a monopoly on photography of the earth (useful for a variety of commercial purposes such as crop forecasts) that is only now about to be broken—by the French subsidiary of an American firm that developed the satellites for NASA. This point is emphasized in the Nelson study mentioned earlier: "In the three defense-relevant industries [in the study] they [government programs] have certainly brought us technological primacy."[136]

Even in semiconductors, an area where U.S. industry criticism has been directed against Japanese government programs for its industry, U.S. government support has been significant. In a recent analysis, economist Richard Levin states that "although there is no evidence that latent military demand played a significant role in inducing the invention of the transistor, there can be little doubt that the presence of a large potential military market increased the rate and influenced the direction of technical change in the 1950s and 1960s. In particular, two of the most important innovations of the period—the silicon transistor and the integrated circuit—were both developed with the military clearly envisioned as the first large customer."[137] Demonstrating this point, the study provides data showing that the government share of total semiconductor shipments was 35-50 percent in all years between 1955 and 1963, and until 1968 was at least 25 percent. Even now the government share hovers around 10 percent.[138]

Health is another area where U.S. government support for social purposes feeds into industrial competitiveness. Data published by the National Institutes of Health (the government's funding institution for health R&D) show that national health R&D came to an estimated $9.2 billion in 1982, of which government spent $5.5 billion.[139] Of the government part, NIH spent $3.4 billion. While much of this is for basic research, $432 million of the NIH budget was for applications, and another $149 million for technology transfer in 1982. Also, while most of the money goes to nonprofit schools, government, and other research institutes, in 1981 $144.7 million went to for-profit institutions (i.e., private industry). While these figures for direct commercial support are small, the larger framework of NIH work certainly provides a supportive environment for the highly competitive U.S. pharmaceutical industry.

Joint R&D is one feature of R&D policy not much used in the United States because industry assumes that most cases would be violations of antitrust law. However, the Antitrust Division of the Justice Department feels that private industry attitudes are inaccurate, and that the government policy is not as stringent as supposed.[140]

Although the United States has little joint research activity, the study by Richard Levin on semiconductors found some similarities between U.S. policy and the VLSI project in Japan, stating that the "VLSI program had much in common with successful U.S. military efforts in the past."[141] The specific points of similarity that he notes include clear technical objectives, government funds more than matched by the private sector, government facilitation of the dissemination of information, and retention of patents by the participating firms. Thus, the kind of project represented by the VLSI research in Japan is no stranger in the United States.

Nevertheless, the fact remains that true joint R&D is even less frequent in the United States than in Japan. Behind the more restrictive policy stance toward joint R&D lies the assumption that the economy is better off without it—a definite industrial policy choice. The U.S. attitude is that individual effort provides a greater variety of potentially profitable technological approaches that might be missed through joint work. The Japanese attitude seems to be that joint work can eliminate duplicative (i.e., wasteful) research, an understandable attitude given Japan's lagging position in technology until recently. Joint research may be a more efficient approach when catching up than when at technological frontiers, when the direction that should be taken is unknown. People tend to talk in very simple terms about technology and R&D, when in reality the world at the frontier of technology is a very uncertain one, and no one can easily predict which approach to a problem will be the successful one.

Another way to evaluate the differences between Japan and the United States is the view taken by Professor Gary Saxonhouse. He suggests that information flows less freely in Japan because of lower labor turnover, fewer professional associations among scientists and engineers of different companies, and less reliance by Japanese companies on universities for general training and basic research. With these liabilities, the government has fostered joint research as a way to institutionalize the types of information flow among firms that takes place in the United States without government intervention. He supports his view with evidence on the manner in which research activity is conducted in Japan and the United States.[142]

U.S. attitudes about joint R&D seem to be shifting as well. The two joint ventures recently set up in the United States for semiconductor research have not been challenged under U.S. anti-

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[134] National Aeronautics and Space Administration, *Spinoff 1982* (Washington: U.S. Government Printing Office, 1982).

[135] Ibid., p. 122.

[136] Nelson, "Government Stimulus," p. 458.

[137] Levin, "The Semiconductor Industry," p. 58.

[138] Ibid., p. 60.

[139] U.S. Department of Health and Human Services, National Institutes of Health, *NIH Data Book* 1982.

[140] William Baxter, "Statement Before the Committee of the Judiciary, U.S. Senate," June 29, 1983.

[141] Levin, "Semiconductor Industry," p. 88.

[142] Gary Saxonhouse, "Tampering," p. 19-32.

Table 21: Example of Commercial Spinoffs from Projects Undertaken for NASA

Item:	Developed For:	Commercial Use:
X-ray systems	NASA x-ray telescopes.	X-ray inspection equipment; computerized tomography for medical use. (American Science and Engineering, Inc.)
Laser-wire strippers	Precise wire stripping for electrical connectors in spacecraft.	Various products where thin wires are used. (Raytheon Corp.)
Contamination control	Lowered static electricity buildup in clean rooms.	Sterile drug production. (The Upjohn Company)
Inventory management	Management of supplies for the space shuttle.	Industrial materials management. (Tropicana Products, Inc.)
Energy recovery systems	Organic Rankine Cycle (ORC) for spacecraft electrical power.	Advanced industrial cogeneration systems. (Crane Company)
Clean room apparel	Spacecraft construction work.	Hospital and industrial clean room apparel. (American Hospital Supply Corp.)
Blood analyzers	Automated blood analysis in weightless conditions.	The Grunbaum System for electrophoresis. (Sartorius Filters, Inc.)
Gas analyzers	Monitoring astronaut respiratory gases.	Monitoring patient respiration during surgery. (Perkin-Elmer Corp.)
Portable x-ray devices	Unspecified space uses, developed by Goddard Space Flight Center.	Emergency medical uses and industrial applications. (Lixi, Inc.)
Flat conductor cable (FCC)	Spacecraft electrical systems cabling.	Electrical wiring in office buildings. (Thomas and Betts Corp.)
Anodizing processes	Production of hard aluminum finishes on spacecraft.	Industrial anodizing. (Reynolds Metals Company)
Ultrasonic stress monitors	Testing material strength on critical spacecraft components.	Industrial materials testing. (Micro-Ultrasonics, Inc.)
Analysis-of-strength computer software	Determining bending moment, deflections and critical loads for latticed structures.	Testing new construction equipment. (FMC Corp.)
Hydrogen generator	Fuel cells in Gemini spacecraft.	Cooling systems in electric power plants. (General Electric Corp.)
Power controller	Developed by NASA for the Dept. of Energy.	Conservation of electricity use in motors. (produced by 30 companies)
High intensity lights	Simulating effect of sunlight on Apollo spacecraft.	High intensity flashlights and portable searchlights. (Streamlight, Inc.)
Computer graphics	For imaging spacecraft, including Landast and Voyager.	Business graphics, CAD-CAM, animation, mapping. (Diomed Corp.)
Mineral/water analyzer	Viking spacecraft on Mars.	Portable geographical exploration unit and water quality monitoring. (Martin Marietta Denver Aerospace)
Noise abatement	Vibration control in Apollo Lunar Landing Module (LEM).	Industrial noise control (Environmental Health Systems, Inc.)
Flow calibration	Measurement of fuel supplied to rocket thrusters.	Calibrating precision hydraulic controls. (Flow Technology, Inc.)

Source: National Aeronautics and Space Administration, Spinoff 1982 and Spinoff 1983.

trust law—the Semiconductor Research Corporation and the Microelectronics and Computer Technology Corporation. In addition, several pieces of legislation are now being considered before Congress to ease the restrictions on such joint work (considered below). One of the arguments now being made is that in certain fields, including semiconductors and commercial aircraft, the required size of investment in research has become so large, and the risks so great, that single firms cannot shoulder them. Whether this offsets the loss from less diversity of approaches, however, remains a serious question.

Government Endorsement of Collusive Activity

While the United States does maintain a rather strict antitrust policy, it makes exceptions through specific pieces of legislation. One of the primary examples is U.S. trade law; under these laws, the United States permits restrictions on foreign competition for reasons that would not be condoned were the competitors domestic firms.

In the past, the United States also established economic regulation as an alternative to antitrust prosecution in railroads, airlines, trucking, electric utilities and telecommunications. This regulation has involved permission for a variety of collusive activities, such as joint rate setting by railroads. However, the late 1970s brought a wave of deregulation to some of these industries to encourage greater competition.

The prevailing attitude among businessmen and some government people in the United States at the present time, though, is that U.S. antitrust policy may act as an impediment to American firms in international competition. One manifestation of the current mood is the series of bills before Congress proposing alterations to the antitrust laws, principally to ease the conditions for joint research. The Justice Department has supported some change or clarification of antitrust policy toward R&D because of what it sees as business sector confusion or misunderstanding.

During 1983, a plethora of bills were submitted to Congress proposing changes in antitrust law to permit joint R&D activity. These were largely superseded in September when the administration submitted its own bill (H.R. 3878). This proposal states that joint R&D would not be in violation of antitrust rules unless it facilitated price fixing or reduced innovation. It also stipulates that courts must consider the competitive benefits of such joint ventures before making any decision on antitrust grounds. In order to discourage private suits, it limits settlements to actual damages, rather than the usual treble damages. In addition, the bill eases restrictions on the licensing of patented technology, by prohibiting courts from condemning restrictive licensing arrangements without considering the competitive benefits and by removing treble damages liability in licensing suits.

A final point to be considered is that one of the goals of antitrust policy is to prevent monopoly, and at that simple level, the two countries are not very far apart. MITI has never favored monopoly even when it has been able to override the JFTC's opposition to its policies. In a number of industries, MITI pushed for oligopolies in the mid-1960s with a very limited number of companies, but it avoided focusing on a single firm, single technology or single product (except in aircraft, as discussed earlier). The main purpose of that policy was to strengthen Japanese industry as the country underwent capital liberalization (perceived by MITI as making Japanese firms easy targets for foreign take-overs), and MITI's interest in mergers has lessened since that time. As a result, the overall industrial structure of the two countries is not all that different, despite perceptions of major differences in antitrust policy. Richard Caves of Harvard and Masu Uekusa of Keio University found no striking differences in the concentration of industry in their work in the mid-1970s.[143]

Targeted Tax Favors

Most of the U.S. structuring of taxes for industrial development purposes has been of a general nature and was covered above under macroeconomic policy. At the targeted level there is little to add, except that the states play some role. While not targeted at any set of predetermined industries, states use reduction or postponement of property taxes, state income taxes or sales taxes as an inducement to attract firms to locate plants within the state. As with the industrial revenue bonds discussed earlier, the net effect of these policies may be a general lowering of taxes paid by the corporate sector as states compete with one another to offer favorable conditions to attract industry, rather than any particular benefit to any one industry.

Aid for Export Development

The United States has never provided as wide a variety of export promotion measures as Japan did in the past. It is no stranger to this area, however, and it is currently doing more than is Japan. Government policies supporting export efforts include DISC, the Export Import Bank, Webb-Pomerene associations, the Export Trading Company Act, and the Foreign Commercial Service. While the effectiveness of each of these has been strongly questioned during the current debate over policy in Washington, their existence should be acknowledged.

DISC provides a postponement of taxes on export business in much the same way as the Japanese tax system provided in the 1960s. The Export Import Bank does not provide support for as large a percentage of U.S. exports as does its counterpart in Japan. This has been the center of some controversy, but even the free-market-oriented Reagan administration has not reduced its role. The Foreign Commercial Service provides market information and sponsors trade fairs for American products in foreign countries, the result of reorganization and upgrading over the past several years, though it too has been criticized in Washington as ineffectual. Even if not particularly effective, its involvement in exports probably now exceeds that of JETRO.

The Webb-Pomerene associations and the newly enacted Export Trading Company Act focus specifically on enhancing international competitiveness for small manufacturers. The new legislation on export trading companies was largely a response to the perceived failure of the Webb-Pomerene associations to achieve their intended goal. In 1967, a Federal Trade Commission study concluded that "a half century of experience with the Webb-Pomerene Act reveals that associations have not proven to be effective instruments either for the expansion of overall U.S. exports or for the expansion of exports by small firms."[144] A similar, more recent review by *National Journal* reached similar conclusions.[145] It remains to be seen how significant the trading companies organized under the new law become as a vehicle for promoting U.S. manufactured exports. Skeptics abound, but the law does represent as definite a step as any in Japan to promote and encourage domestic firms.

Options in promoting exports are limited by U.S. commitment to the Gen-

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[143] Richard Caves and Masu Uekusa, "Industrial Organization," in Patrick and Rosovsky, eds., *Asia's New Giant*, pp. 470-475.

[144] United States Federal Trade Commission, *Economic Report: Webb-Pomerene Associations: A 50-Year Review* (Washington: Government Printing Office, June, 1967), p. 61.

[145] Emil S. Finley, "The Realities of United States Foreign Trade and the Fictions of our Cartel Advocates," *National Journal*, May 5, 1979, pp. 758-763.

eral Agreement on Tariffs and Trade (GATT), but as these policy measures indicate, this is a policy area that has not been ignored by the United States. Since Japan has eliminated or reduced many of its former programs for encouraging exports, the American policies are now more extensive than those in Japan.

Overall Evaluation and Comparison to Japan

Many of the policies described above imply that what actually happens in the United States is often not strikingly different from what happens in Japan. The major difference or matter for concern in the United States is the question of coordination. But before coming to any conclusion about the success or failure of policy, it is important to consider as well the differences in national circumstances between the two countries and the ways in which Americans tend to exaggerate the weakness of the economy.

Coordination

One of the key concerns of people who compare Japan to the United States is the one of coordination in industrial policy. This is a quite legitimate concern for those involved with formulating U.S. policy, but the contrast between the countries is sometimes overdrawn. This is certainly a characteristic of the study by the Urban Institute mentioned earlier, which sets up a contrast between a highly coordinated Japan and an uncoordinated and ineffectual United States.[146] Their contrast has more to do with their goal of a more active government industrial policy in the United States than with the facts.

In Japan, divisions of authority among ministries and vertical divisions within the ministries imply that there is a breakdown in the ideal of consensus and coordination. All bureaucracies must endure struggles over jurisdiction and policy goals, and Japan's is no better than any other (and may be considerably worse). Achieving some semblance of consensus in these conditions, such as in the MITI visions, involves the politics of compromise far more than hard economic analysis, so that inclusion of any particular industry as a high-growth prospect may have little consistency with other statements or decisions.

The importance of politics means that the actual distribution of government favors has been biased in the direction of small business and agriculture in Japan, just as it has been in the United States. If the United States were far less coordinated than Japan, one would expect that Japanese policies would reflect a different pattern of targeting rather than the same one. Thus, it is not at all clear that Japan has gained very much from its more coordinated articulation of industrial policy goals.

Another point is that the United States does have some coordination of its own, built around the goal of national defense security. Concern over defense leads to encouragement of the same growing industries that are MITI's focus for purely commercial reasons in Japan; a strong infrastructure for defense is practically synonymous with a strong commercial structure.

Nevertheless, coordination remains a legitimate concern, and the United States may well do better with more coordination. The Urban Institute takes a strong stance on this point: "The question of whether or not the federal government should have an industrial policy is a moot one; given that such policies exist, the key public policy question is what form an individual policy should take, and how the existing policy can be coordinated and integrated into a single federal industrial policy."[147] The United States could benefit, but so could Japan, and if Americans think that Japan represents coordination, then it ought to be held up as a demonstration of the difficulty or impossibility of achieving that goal through democratic institutions.

Differences in National Circumstances

The United States faces a far different environment than the Japan of the 1950s or even the Japan of the early 1980s, and any comparisons of the two countries must take this into account. For example, the fact that the United States is at the technological frontier means that there is less of a role for the government to play in guiding the direction of industrial structure because there is less consensus on that direction. Everyone knows that the economy will move in the direction of higher-value added industries, but which industries will those be, and what will be their successful or important technologies and products? Japan did not face those problems until very recently, making policy easier to devise.

Racial, ethnic and political diversity in the United States also mean that it is not reasonable to expect as much agreement on an aggressive role for government. This diversity should be considered a strength as well as a weakness; if we value that diversity for philosophical reasons, then we must accept and live with its implications for devising aggressive government industrial policy. The division of power between the federal government and the state governments, another feature of the American political system that we value for philosophical or ideological reasons, again means that strong coordination of policy on the federal and state levels is impossible.

These comments are not meant to imply that the United States could not improve its record on industrial policy, but at the very least one should approach the question with skepticism. Any pronouncements on what the United States can do that are based on Japan as a model are inappropriate. The United States may not need, want, or be able to closely emulate Japan.

Supplementarity vs. Substitution

Any comparison of industrial policy in Japan and the United States ought to consider also the problem of evaluating whether government policies supplement, encourage, and promote private sector activity or whether they simply substitute or replace what the private sector would have done in the absence of government action. This is a problem that applies especially to evaluating both the government lending role and government support for R&D. State-level programs have been criticized as only substitutes for the private sector, but the same charges can be levied at Japan, so that it is not at all clear that Japan is more effective than the United States.

Functional Equivalency

What ought to count in comparing Japan and the United States is the function or impact of government policies, not the particular institutional form the policies take. No one, for example, should suppose that just because the United States does not have a development bank similar to the Japan Development Bank that U.S. government financial support (in the form of loans, loan guarantees, or provisions for tax-exempt bond issues) do not benefit many of the same industries or activities that are the recipients of JDB loans. Writers such as Chalmers Johnson, by ignoring the functional equivalents in the United States when analyzing Japan, leave the strong impression that no equivalent exists.

At a broader level, some Japanese firmly believe that their efforts at industrial policies are a functional equivalent of the national defense policy in the United States. Professor (emeritus) Hiromi Arisawa of Tokyo University, who was influential in shaping industrial policies when Shigeru Yoshida was prime minister in the early postwar years, said in an interview for this project that "the

[146] Levinson, et. al., *The Federal Entrepeneur*.

[147] Ibid., p. 84.

U.S. encourages industries for national security reasons. This is exactly what happens in Japan." A nation stripped of its military might have only its economy on which to rely, and Mr. Akio Morita of Sony Corporation expressed a similar view when interviewed for this project.

Another aspect of functional equivalency has been mentioned several times before in this study. Some Japanese government actions are attempts to provide non-market solutions in cases where the private market has worked well in the United States, but not very well in Japan. Examples may be the market for information and for equity capital. In both cases, one can argue that the United States needs little government guidance because the private markets are very well developed and function smoothly. In Japan, on the other hand, the private markets do not work as well, and some government guidance to overcome the economic liabilities stemming from that situation is acceptable (such as joint research to further information exchange or the MITI visions to supplement the less-well developed equity capital markets).

When viewed in terms of functional equivalence, there is very little that Japan does that the United States does not do—either through other forms of government policies and institutional arrangements, or through the private market. This returns us to the proposition that the difference between the two countries is coordination, and even that possibility generates debate and disagreement.

How Americans Underestimate the United States

A major dilemma in arriving at any objective view of what is happening in the two countries is the tendency of some Americans to claim that the United States is in a state of crisis and failure. Robert Reich is especially guilty of this when he makes statements like the following: "Since the late 1960s America's economy has been slowly unraveling. The economic decline has been marked by growing unemployment, mounting business failures, and falling productivity."[148] This exemplifies what might be called the "gloom and doom" school of analysis. Others make the United States seem worse by comparing it to a very idealized Japan, as in the Urban Institute study.

This feeling of gloom and crisis has been challenged by economists looking carefully at the state of the economy. Herbert Stein, for example, has written a scathing review of Reich's latest book, calling his description of failure in the U.S. economy highly exaggerated and commenting that it includes misleading comparisons to other nations. Whereas Reich sees the United States uniquely falling behind, Stein points out that most industrial economies have experienced slower GNP growth and lower increases in productivity.[149] Stein has now been joined by Charles Schultze of the Brookings Institution, who has offered very similar views about the U.S. economy, indicating that within the economics profession there is little division on this question regardless of liberal or conservative backgrounds.[150]

Robert Lawrence of the Brookings Institution has also attacked the idea that the United States is being hurt economically by international trade (and by extension that the manufacturing sector is no longer competitive). He finds that for the decade of 1970-1980, trade brought a net gain in manufacturing value-added in the United States and only a very small loss in jobs. Results are sensitive to the choice of starting year, and if 1972 is picked as the first year, then both value added and jobs show a gain. Therefore, trade has not had a significant negative effect on the economy. He states: "For the decade as a whole, . . . the automobile industry is virtually the only industry whose experience fits the widely held view that employment declines were due to trade and that, without trade, employment would have grown."[151] He goes on to conclude that the United States has not been losing comparative advantage as a whole and is still developing an increasing comparative advantage in high-technology industries.

The United States certainly faces a number of serious economic problems, including low productivity growth and high unemployment. But becoming hysterical about the situation and describing industrial policy as the panacea is foolish. Japan, with its more visible industrial policy, has faced rather serious problems over the past decade as well, and its growth performance no longer outdistances the United States by as much as it once did. Europe, with its even more aggressive or dominant government industrial policies, has fared worse than the United States. Changes in U.S. industrial policy may be of benefit to the nation, but they will not single-handedly create prosperity.

Changing Attitudes in Washington

Some of those changes in industrial policy may now be shaping up, at the same time that criticism of Japan continues. The proposals on antitrust policy have already been discussed. The democrats have introduced legislation on the basis of the House caucus report to create a development bank and a government-labor-business council on industrial policy. In the present election year, proposals for more active industrial policy are sure to abound.

Even the Reagan Administration, with its espousal of freeing markets from government interference, has created its commission on industrial competitiveness to make suggestions. The administration has further signaled its interest through submitting its legislation on altering antitrust legislation on joint R&D and licensing, and it has given at least verbal support to more training in math and science in grade schools, encouragement of science and engineering in universities, increased funds for displaced workers, tax credits for corporate training of workers and continued support for R&D.[152] Unfortunately, some of these verbal commitments seem to stand at odds with actions like trying to cut NASA's budget for technology transfer.

Whether the administration is sincere or simply looking for position to help it through the 1984 election, the message is clear: more coordinated industrial policy is a topic that both political parties are starting to embrace. If this trend continues, is it right to castigate Japan for doing what the United States is considering doing at home?

Summary View of U.S. Industrial Policies

The United States has used a number of industrial policies, despite the ideological preconception of some that government in the marketplace is bad. When looked at in its totality, what the United States does is not very different from what Japan does, except for the question of coordination raised above and, perhaps, education.

The major areas of U.S. activity have been import barriers, tax breaks, provision of financing (direct loans and guarantees), support for R&D (both direct funding and promotion of technology transfer in government programs), and the provision of physical infrastructure.

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[148] Robert Reich *The Next American Frontier*, p. 3.

[149] Herbert Stein, "Industrial Policy, A La Reich," *Fortune*, June 13, 1983, pp. 201-208.

[150] Charles Schultze, "Industrial Policy: A Dissent," *The Brookings Review*, Fall 1983, pp. 3-12.

[151] Robert Lawrence, "Is Trade Deindustrializing America? A Medium-Term Perspective," *Brookings Papers on Economic Activity*, 1983(1), p. 138.

[152] Edwin Harper, "Address to U.S. Chamber International Forum," June 15, 1983.

In all five of these areas it would be difficult to argue that the United States is less supportive than Japan of industrial development.

In other areas the U.S. record is less active. Education is currently under great attack as a failure—compared to the continued high performance of Japanese students. Subsidies are spotty and not aimed at growth industries—but this is similar to Japan. Relaxation of antitrust is only at the discussion stage and strong doubts remain; Japan has proceeded further, but with results that are ambiguous. Aid for export development exists, even if it has been criticized as ineffective—but is more substantial than exists in Japan now. Planning and forecasting exists at the government level, but not as a proscriptive guide for future policy—compared to the consensus documents produced in Japan, though they too are of questionable or uncertain value.

Conclusion

This study has taken the position that U.S. and Japanese industrial policies are by no means as disparate as commonly supposed. If that is so, then why has Japanese industrial policy received so much criticism by some and so much praise as a model to be emulated by others? This is essentially a question about the political and policy formation process in the United States. To provide an answer, it is useful at this point to look at the main actors in the debate. Basically, the nature of the discussion of Japan's industrial policy was originated and shaped by American companies and industries seeking protection from imports.

Because free trade is (still) a strongly accepted ideological position in the abstract in the United States, protectionist departures from free trade must be justified by "unfair" actions by the foreign competition. This need to demonstrate unfair foreign action has led to a succession of arguments alleging that Japan is unfair, including cheap labor, dumping, "Japan, Inc." and yen/dollar manipulation. "Targeting" is only the latest of these allegations, brought up now that some of the earlier ones have lost their luster.

Leading the movement to punish other countries, Japan in particular, for having industrial policies are several business organizations and companies, including the Semiconductor Industry Association (SIA), the Labor-Industry Coalition for International Trade (LICIT), the Committee for International Trade Equity (CITE), the machine tool industry (mainly through Houdaille Industries, Inc.) and the U.S. Trade Policy Council (led by Chrysler president Lee Iacoca). While the positions that these groups espouse are often put in terms of both protectionism because of unfair foreign action and development of more effective programs at home, their original interest in Japanese industrial policy was to achieve protection from imports. All of these groups have issued reports or made statements criticizing Japan's industrial policy as an unfair cause of U.S. problems in international competition.

Since early 1983 some of these groups (such as CITE) have tried to distance themselves from the protectionist label, so that now the situation is less clear. What matters most will be the position that they choose to take as the election approaches in 1984, and that remains uncertain.

So far, the effort of the protectionists has been confined mainly to preparing reports and lobbying Congress for change in trade laws. Houdaille Industries, Inc. has been the only company to bring a trade case that was based mainly on the allegation that industrial policy gave its Japanese competition an unfair advantage. The others are still conducting and disseminating studies to build broader support for their positions and will be looking to the presidential campaign to gain a wider hearing for their views.

Any group trying to demonstrate that Japan is "unfair" obviously has no incentive to present a balanced or objective view of Japan's industrial policies or to acknowledge the actual importance or effect of industrial policies in the United States. The SIA, for example, makes much of the VLSI project in propelling its Japanese competition into the leading role in 64K RAM production, while denying that U.S. military support has been comparable because of the national security distinction. The accusations ring rather hollow.

A second group now involved in the discussion might be labeled the "idolaters." These are people who want to see a more active government role in the formation of U.S. industrial policy because of the belief that the United States is sinking deeper into a mire of economic failure, and they are looking to Japan as a primary example of what is desirable. This groups belongs to a long U.S. tradition of self-criticism and opposition to existing government policies, but few members are knowledgeable about Japan. Most of those who are knowledgeable about Japan, in turn, have little expertise on the United States. Into this category fall people like John Zysman and Stephen Cohen of the University of California at Berkeley, Ezra Vogel at Harvard University, Chalmers Johnson of the University of California at Berkeley, Bruce Scott and Robert Reich of Harvard Business School and Lester Thurow of MIT.

The idea of Japan as an exemplary model for the United States actually predates the newest trade arguments. This approach was first popularized in Ezra Vogel's book, *Japan as Number One*. Deliberately overdrawn in an effort to get Americans to focus for the first time on the fact that Japan, far

from achieving success through unfair trade practices, is actually a more successfully organized and managed industrial society than the United States, the book's thesis has been taken up by those proposing changes in U.S. policies.

The proponents of change have an incentive to exaggerate Japan in their desire to demonstrate what the United States ought to be doing. While their intention would seem to be diametrically opposed to protectionist retaliation, the two positions may merge in the political campaigning in 1984. Since import barriers are one form of industrial policy—one used very extensively in Japan during the 1950s and 1960s—those who advocate a stronger industrial policy at home seem to have few qualms about including import protection as part of their package.

There is every indication that the popular image is now shifting somewhat as specialists on the Japanese economy and others involved in the domestic policy debate have responded to what they perceive to be excesses or exaggerations by both sides. While fewer studies have emerged to date from this of "respondents", its proponents have begun to appear in hearings before Congress and in the media. Included in this category are Charles Schultze and Robert Lawrence of the Brookings Institution, Gary Saxonhouse of the University of Michigan, Hugh Patrick of Yale University, Eleanor Hadley of George Washington University, Herbert Stein of the American Enterprise Institute and specialists at the Hudson Institute. Government officials in both Japan and the United States seem to fall into this group as well; with the Reagan administration fending off the hard-liners on protectionism and Tokyo trying to defuse foreign criticism.

Thus, the current round of publicity given to Japan's industrial policies originated with the protectionists and was echoed by the idolaters. This colored the information being fed into U.S. media and policy makers, which is now being gradually rectified by the respondents. This study joins the effort to put Japan's industrial policy into a more balanced and objective framework.

This study has offered a number of points about industrial policy. First, it has defined industrial policy in broad terms. Most of the debate of the protectionists has focused on very narrow policy issues, but broader macroeconomic and macrosocial policies also play a role in industrial policy. When these are considered, the two countries begin to look a lot less different.

On both macro and micro levels, though, American allegations about what Japan does, and the effectiveness of what it does, are overblown. Analyses look too much at the past without considering the changes over time; look at MITI policy measures without considering their actual operation or the other factors involved in an industry's success; do not balance "success stories" against the failures; assume too much coordination and planning; overestimate the role of the government in financing industry; and fail to compare Japan to the United States.

In fact, both countries have industrial policies which have some impact on the fate of the economy and its development. And, with very few exceptions, these policies look remarkably similar in actual implementation. Japan's industrial policy is more clearly articulated and more often discussed publicly than is the case in the United States (at least until recently), and as a result may be somewhat more coordinated. Japan also uses some policy measures which the United States does not use, such as the consensus documents on the desired future shape of the economy and the greater relaxation of antitrust. However, the areas of similarity are more striking than the differences, and those differences have been disappearing over time as the measures available to the government have declined in Japan.

Much of the current debate has missed the important fact that many of the important decisions and policies affecting the economy's success in both countries are the macroeconomic level. For most industries in Japan, the macroeconomic environment plus heavy protection in the 1950s and 1960s were by far the most important policy elements in their success; the plethora of other microeconomic targeted aid measures pale in comparison.

Because there exist industrial policies in the United States that are not so different from those in Japan, and because the Japanese policies are much less significant than is commonly believed, criticism of Japan is not a very productive route to follow. If the desired goal is removal of artificial aids to international competitiveness, then the U.S. government would do much better to stick to the traditional area of applying pressure to remove import barriers (plus reconsideration of U.S. macroeconomic policies resulting in an overly strong dollar).

Industrial policy is certainly worthy of discussion, especially since there is no international agreement on the limits of acceptable government support for industry, beyond the use of countervailing duties against subsidies. However, because of the difficulty of establishing the boundaries of what is or is not industrial policy, devising an international agreement is probably beyond the realm of the reasonable. For Japan and the United States, though, no such agreement seems to be necessary, since the arguments have been overblown and the actual differences and competitive impact of microeconomic policy measures in industrial policy are relatively small.

Whatever the United States decides to do about changing industrial policy, it should be done with three thoughts in mind. First, the circumstances surrounding industrial policy in Japan have been quite different from those in the United States—both in the past and in the present. Therefore, Japan can be used as a model only with great caution, and only for a few types of policy measures. Second, the United States should not expect miracles from tinkering with industrial policy, because the Japanese did not get miracles from their own policies. Third, the United States should think twice about moving toward the use of import protection as an industrial policy tool at a time when Japan continues to move away from it.

Despite these cautions, Americans will continue to be fascinated by the Japanese model of industrial policy as the country gropes toward consensus of an appropriate path to follow. This is a healthy and useful development, but the exaggerations, misperceptions, and accusations directed against Japan in much of the discussion to date have contributed nothing useful to the process.